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Managing Windows for Air.

There is always a draught through key-holes and window crevices, because as the external air is colder than the air in the room we occupy, it rushes through the window crevices to supply the deficiency caused by the escape of warm air up the chimney. If you open the lower sash of a window, there is more draft than if you open the upper sash. The reason of this is because if the lower sash be open, cold air will rush into the room and cause a great draft inward; but if the upper sash be open the heated air of the room will rush out, and of course there will be less draft inward. A room is best ventilated by opening the upper sash, because the hot vitiated air, which always ascends towards the ceiling, can escape more easily. The wind dries damp linen, because dry wind, like a sponge, imbibes the particles of vapor from the surface of the linen as fast as they are formed. The hottest place in a church or chapel is the gallery, because the heated air of the building ascends, and all the cold air which can enter through the doors and windows keeps to the floor till it has become heated.

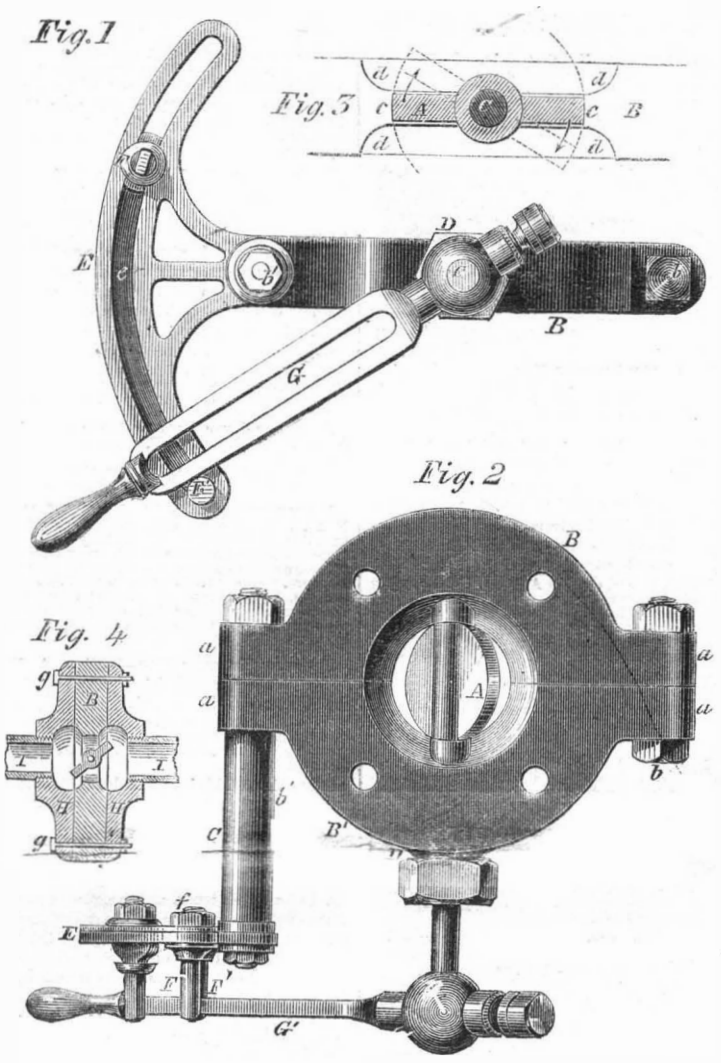
Special attention should be given to the ventilation of sleeping-rooms; for pure air and an abundance of it are, if possible, more necessary when we are asleep than when we are awake. Sleeping-rooms should be large, high, and airy, more especially in warm latitudes, and in situations where the windows have to be kept closed at night on account of malaria.

Ventilating Hats.

A great number of hard-shell hats are made with a small opening covered with gauze in the crown of each, and with this arrangement it is supposed they afford ventilation for the head, and tend to keep it cool during warm weather. This is a mistake, because ventilation can only be effected by a current of air, and as there are no means provided for the inlet of air, but only for its outlet, in such hats, of course they cannot afford ventilation. The true ventilating hat must have perforations at or near the band to secure the inward passage of air, and quite a number of such hats are now manufactured and worn. Felt hats, being somewhat porous in their texture, afford partial ventilation. Silk plush hats being saturated with lac-varnish are perfectly impervious to the atmosphere.

We hope our friends will make up their lists, and send in their subscriptions for the new volume with as little delay as possible. The first number of the new volume will be issued June 29. There is only one more number to be published before this volume will close.

COPE & HODGSON'S GOVERNOR VALVE.



The subject of our engraving is an improvement on what have long been known as "butterfly valves," and is for the purpose of enabling the engine to be controlled with greater accuracy. There is less friction and it is very simple. In our illustrations, Fig. 1 is a front view of the valve, and Fig. 2 is a top view of the valve and its box complete, and ready to be applied to a steam-engine regulator in connection with a governor. A is the valve, B B' the box, and C the valve spindle. The valve may be made of the usual form and about the usual thickness, with the exception that it has its periphery turned to represent a portion of a sphere concentric with C. The transverse section of the valve is seen in Fig. 3. The box, B B', has the seat, *c*, turned of a similar spherical form to the face of the valve to make a close but easy fit thereto. The fitting should be completed by grinding. To provide for the insertion of the valve in the seat the box has to be divided into the two parts, B and B', which have lugs, *a*, on them which receive bolts, *b b'*, that hold the parts together. The seat, *c*, need not not be any wider than the face of the valve, and may have an enlargement to correspond with the enlargement of the valve near the valve spindle. By providing the box with a cavity, *d d*, the valve, when open, has its openings increased or diminished in a greater degree by a given movement than an ordinary throttle valve, as the edges of the valve move directly away from the seat instead of parallel with it. The spindle, C, is shown fitted into a stuffing box in the part, B, of the valve box, but a stuffing box will be unnecessary if the spherical faces of the valve and seat be properly fitted, as in that case no steam could escape around the spindle. E is a slotted plate attached securely by the bolt, *b'*, to the valve box. The slot in this plate is an arc concentric to the spindle. F F' are two stops made adjustable in the slot and capable of being secured in any position therein by nuts, *f*, applied to screw-threads cut upon them. These stops are for the purpose of limiting the movement of the valve gear, G, which plays between them, one of them stopping the valve when closed and preventing it giving steam the wrong way, and the other stopping it when it has the greatest amount of opening. By shifting the lever, G, on the spindle, either with or without changing the position of the stops, the movement of the valve may be controlled in a similar manner, opening in the reverse direction, and hence the valve is applicable in connection with any arrangement of a governor. The spherical-faced butterfly valve may be used not only for a governor valve, but as a cut-off for steam-engines or for any purpose in which a close-fitting and perfectly balanced valve is required. Fig. 4 shows the method of attaching the valve to steampipes. The pipes, I, are screwed into suitable flanges, H H, which are secured to B' by bolts, *g*. These flanges are so cast as to give, when attached to B', suitable steam room to the valve, and making, as it were, a little chamber on each side.

These valves have been in use and are highly approved of by those who have tried them, as is testified by numerous certificates now before us. The inventors are Nathan Cope and William Hodgson, of Cincinnati, Ohio, and they will be happy to give any further information upon being addressed as above. The patent is dated May 10, 1859.

Gutta Percha and Ships' Compasses.

One of our cotemporaries states that the new steam frigate, *Lancaster*, which is at present lying at the Philadelphia navy yard (where she was built), "has two binnacles on the spar deck arranged with gutta-percha so as to cut off the effect of local attraction." Gutta-percha is an electric insulating material, but not a magnetic insulator. A magnet will attract a piece of metal with a piece of glass interposed between them, and yet glass is superior to gutta-percha as an insulator. The remedy for local attraction between the machinery of a steamship and the compasses is *distance*, not gutta-percha, as the attraction is inversely according to the square of the distance. A stratum of dry air is superior to either glass or gutta-percha as an insulating medium.

Fever and Ague.

There are some situations where fever and ague prevails every season, and this is the case in the vicinity of creeks and swamps in Long Island, not one mile from New York City. An acquaintance of ours, who has resided for several years on one of these creeks, never has had a single case of fever and ague in his family, while all his neighbors have been more or less affected with it every season. He attributes his immunity from this troublesome disease to the use of a good fire in his house every chilly and damp night in summer and Fall. When the Indians travel at night or early in the morning in swampy regions, they cover their nose and mouth with some part of their garments to warm the air which they inhale, and this they say prevents chills and fevers.

Pitch Phenomenon at Sea.

While the bark *Rolla*, of New York, was in the Gulf of Mexico, on May 4, it passed through a scum of smoking pitch which extended for several miles, and emitted a most nauseating odor. It was supposed by her captain (Mr. Rogers) to be thrown up by a submarine eruption from some part of the bottom of the ocean. This, we think, is the true explanation of the phenomenon. There are extensive formations of mineral pitch in Cuba, Trinidad, and other West India islands, and no doubt there are beds of this material under the waters of the gulf.

Sulphurous Acid.

As this acid is not to be obtained at the druggists, and as some of our readers may occasionally wish to use it in chemical experiments for bleaching &c., the following simple method of making it, taken from the London *Chemical Gazette*, will be found useful:—

Take 2 ounces of sulphur in fragments, and 25 ounces of sulphuric acid and place them in a glass flask furnished with a gas tube. After this heat it over a spirit lamp, when the sulphur will soon melt and an evolution of sulphurous acid will take place, which is conducted by the tube into the condensing vessel through cold water.

GLASS *vs.* METAL.—Practice has developed the fact that one-third more light is transmitted by glass than by metallic specula; hence the old catoptric or reflecting light-houses are disappearing and giving place to catoptric or glass systems.

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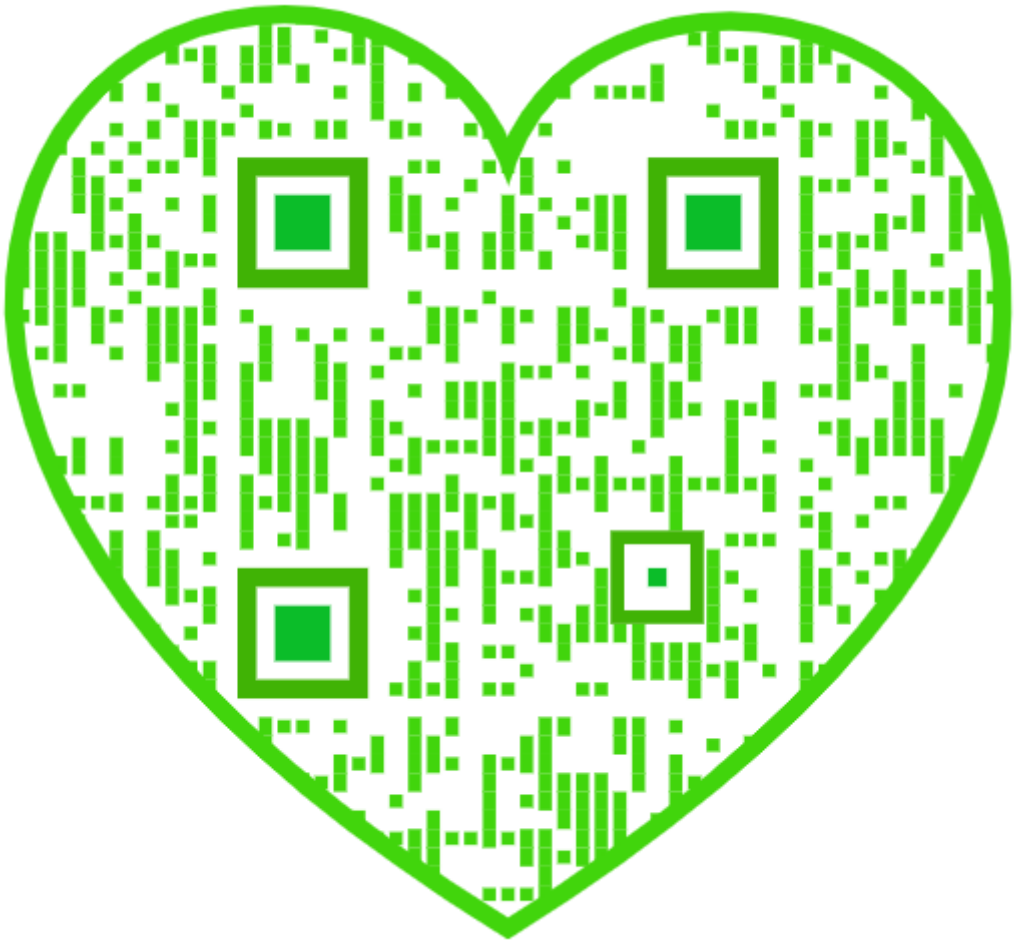

Issued from the United States Patent Office

FOR THE WEEK ENDING JUNE 7 1859.

[*Reported officially for the Scientific American.*

*** Circulars giving full particulars of the mode of applying for patents, size of model required, and much other information useful to inventors, may be had gratis by addressing MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, New York.

PRINTING OILCLOTHS—James Albro, of Elizabeth, N. J. : I claim forming ornamental figured surfaces on oilcloth, by raising parallel ridges or surfaces, b, on the ground color, when in a soft or green state, by means of a properly prepared block pressed upon it; and then forming parallel ridges or raised surfaces, d, at right angles thereto, and in the form of the design or desired configuration by means of a properly prepared block. It being understood that I claim the privilege of having either the ground, b, or figure, d, one of them only, if desired, composed of dots or broken lines, or ridges, in order to obtain a similar effect.

[The object of this invention is to give to the surface of oilcloth a new ornamental effect resembling damask, the improvement being used in connection with the ordinary method of printing, It consists in raising the body of the tint or ground color which is laid on the canvas or cloth in the usual or any proper way by means of a block, the face of which is formed of a series parallel raised projections, leaving spaces of about equal width between them, and forming figures on the ridged ground-work by means of a block, the figure or face of which is formed of parallel projections running at right angles to the tint or ground block, so that the figure or ornament will be produced simply by lines or ridges having a position at right angles to the ground, the damask appearance being produced by the action of light without the aid of color.]

BREAKWATER—D. Hillen Armour, of Columbia, Texas : I claim the projecting or overhanging sand plate, F, applied in combination with the diagonal walls of the breakwater, substantially as and for the purpose described.

[This breakwater is designed to protect a channel across a bar from the flow of sand which comes in upon the bar with each tide, and thus keep the channel open without the necessity of making the channel in the bar narrower than the channel in the river. This will, of course, give accommodation to more ships entering a river with a tide, and will ensure a course for ships even at low water.]

WASHING MACHINE—D. S. Ayres, of Hope, N. J. : I claim the revolving disks or heads, with the mode of operating the same as applied to washing machines.

DEVICE FOR RAISING WATER—J. A. Ayres, of Hartford, Conn. : I claim the wind-wheel, H, vane, G, endless chain, J, with buckets, d, and weight, L, attached; the cylinder, C, and annular receiving trough, D, the whole being arranged and combined for joint operation, substantially as and for the purpose set forth.

[An endless chain of buckets, a wind-wheel, and annular water-receiver applied to a well constitute this invention, which is intended to raise water in a ready and economical manner.]

REVOLVING FIRE-ARMS—Thomas Bailey, of New Orleans, La. Patented in England, Jan. 17, 1859: I claim first, The placing of the within-named working or actuating means within the body, as set forth.

Second, The revolving chamber, working on two adjustable centers of suspension instead of in the ordinary way.

Third, The mode described of connecting the barrel to the body.

Fourth, The stopping or retaining of the revolving chamber by means of a spring stop acting on the ratchet, such stop being actuated by a cam on the tumbler.

Fifth, The notch or cavity, in the cap guard or cock-nose, to fit upon the solid part of the chamber, and retain the chamber in a safe position.

BRIDLE BITS—J. B. Baker, of Syracuse, N. Y. : I claim the attachment, as described, of sliding rings, or rein-connections, P, to the curb-bars of bridle bits, when the same are operated upon by springs attached to the bit, substantially in the manner and for the purpose set forth.

CHIMNEY COWL—Henry Bedlow, of Newport, R. I. : I claim the arrangement and combination of the chimney top, or tube, A, chamber, F, tubes, G, or other external draft passages and deflectors, b b, c c' C, the tube chamber and draft passages communicating with each other and the external air, to operate as and for the purpose set forth.

[The cowl is constructed in such a manner that the upper end of the chimney on which it is fitted will be encompassed by a chamber provided with a deflecting plate, and communicating with upright tubes or pipes attached to the outer side of the chamber, the whole being arranged to secure a proper draft in the chimney at all times and under every condition of the atmosphere,]

METHOD OF SAWING SHINGLES FROM THE BOLT—N. Boardman, of Fond du Lac, Wis. : I claim, first, The employment or use of two bolt carriages, F F, when used in connection with the adjustable planes, H, and arranged in the relation with the circular saw, C, as shown, so that a shingle may be sawed from each bolt at each movement of its carriage, and the two bolts operated upon simultaneously by means of one and the same law.

Second, The adjustable or tilting tracks or belt frames, E E, in combination with the reciprocating carriages, F F, and saw, C, the whole being arranged to operate substantially as and for the purpose set forth.

[This is one of those shingle machines in which a circular saw is employed to cut the shingle from the bolt, and the invention consists in using in connection with a circular saw reciprocating bolt carriages, self-acting adjustable dogs and movable or adjustable carriage tracks, all arranged to operate, so that shingles may be sawed simultaneously from two separate bolts by one and the same saw, and the machine is rendered automatic in its operation throughout.]

ENAMEL COMPOSITIONS FOR BRICKS, &C.—Decius W. Clark, of Bennington, Vt. : I claim the enamel or glaze for pottery ware, or other articles formed of the ingredients and substantially as specified.

IMPROVEMENT IN TANNING—John Brainard and W. H. Burridge, of Cleveland, Ohio : We claim the described process of treating skins or hides in a preparation liquor or liquors, substantially as set forth for the purposes described.

POCKET-HANDLE FOR BILLIARD TABLES—John M. Brunswick, of Cincinnati, O. : I claim the pocket-handles, A A', arranged and secured substantially as described, and formed of vulcanized gutta-percha or india-rubber, as a new article of manufacture, for the purposes set forth.

MACHINES FOR BURRING WOOL AND GINNING COTTON F. A. Calvert and C. G. Sargent, of Lowell, Mass. : We claim a cylinder having spaces between the teeth for the accommodation of the seed, as set forth, in combination with a revolving guard, operating in the manner substantially as described.

CORN HUSKERS—J. C. Clapp, of Seneca Falls, N. Y., I claim the combination and arrangement of the carriage, B, fly-clearer, a, cross lever H, concaves and gage, F E, blade, L, and tread lever, J, operating conjointly, substantially as and for the purpose set forth

METHOD OF JOINTING SHINGLES—S. C. Coffin, of Lawrenceville, Pa. : I claim so combining with the horizontal saw, B, that saws the shingle from the bolt, the transverse piece, J, and carriage, K, upon it, so that the same saw that cuts the shingles from the bolt may be used for jointing said shingles, as set forth and explained.

KNITTING MACHINES—Enoch Colvin, of Poultney, Vt. : I claim, first, The combination of the needle arm d, and the iron rim upon the ring, e, constructed as described for raising each needle by itself, and completing each stitch before another is begun.

Second, The cylinder, o, for reversing and regulating the motion of the machine while forming the heel and toe.

Third, The combination of the notched wheel, t, the toothed bar, u, with its pointer, v, the cylinder, o, the elevating arm, n, the elevating bar, S, and cam thereon, and the pin on the wheel, l, by means of all which the motion of the machine is reversed back and forth, and regulated so as to knit upon a straight hose flaps of the proper form for the heel and toe.

Fourth, The wheel, P, and the elevating arm, n, combined with the several parts and devices mentioned in the last preceding claim or paragraph, as above described, for setting in motion at the proper juncture the machinery for regulating the formation of the flaps for the heel and toe.

LIGHT SHADE FOR BILLIARD TABLES—David Conlan, of New York City : I claim, as an improved article of manufacture, a shade for billiard tables, &c., having two reflecting parts, B' B'', and otherwise made as shown and described.

[In playing billiards by night-time, it is desirable to have as much light as possible, and this invention consists in making the gas shades or reflectors that are placed on burners over billiard tables square, and of such an angle or inclination from their base to apex as to throw all the light of a burner on the table, leaving the rest of the room in comparative darkness.]

RAKES—Thos. Crane, of Fort Atkinson, Wis. : What I claim is my improved harvesting rakes for gathering and elevating cut stalks of grain preparatory to binding the same into sheaves, when the said rake is composed of side handles, gathering fingers, and swinging legs, or the equivalents of the same, substantially as set forth.

LOOK—Thos. Dougherty, of Macon, Ga. : I claim the employment of the spring tumblers, C D and E, when constructed and operated in the manner described, in connection with the bolt, B, the said springs being detained by the key to let the bolt slide, as specified.

CHAIN PUMP—Daniel Du Prè, of Raleigh, N. C. : I claim, first, The endless chain for raising water, composed of the curved detachable links, M, when said links are constructed and united in the manner and for the purposes set forth.

Second, Keeping the chain stiff between the upper and lower pulleys by means of projections, R, on the links, substantially as and for the purpose set forth.

Third, The combination of the curved links, M, with the peculiarly shaped curved buckets, N, when constructed and operated substantially in the manner and for the purposes set forth.

RAILROAD CHAIRS—Wm. B. Dunning, of Geneva, N. Y. : I claim, first, The peculiar form of a partly-raised and double-slotted bed-plate, as described.

Second, I claim the peculiar form and position of the clamps, one part of them being confined and borne down on the tie by the weight of the rail and all above it, and the other part, viz., the jaw, resting upon the flange of the rail and holding it fast.

Third, I claim the combination of the several parts, as described, or their mechanical equivalent.

HYDRANTS—James Fay, of Baltimore, Md. : I claim the arrangement of the stock, L, and chamber, B, as constructed with the india-rubber ball, F, rod, E, opening in the top of box, I, nut, G, spring, J, valve stem, n, valve, m, and thimble, H, the several parts being used and operating conjointly, substantially in the manner and for the purpose specified.

HORSE-POWER MACHINES—Wm. Field, of Providence, R. I. : I claim arranging and supporting a hollow driving shaft, and the driven shaft passing through the driver, substantially as described, whereby both driver and driven shaft turn in the same direction, and both ends of the driver are fully supported by boxes independent of the shaft passing through it, while at the same time the bearing of the shaft passing through the hollow driver will be on the driver only at a point directly opposite its journal, so that any slight displacement of either shaft will not cause them to bind on each other so as to increase the friction of the machine.

MACHINE FOR OPENING OLD ROPE—Archibald Ford, of Newport, Ky. : I claim the elevated bar, K, provided with cavities, k k, arranged in the described relation to the feed mechanism and drum, and operating in combination with the latter, to preparatorily open the butts of the rope, as set forth.

MODE OF STARTING CITY RAILROAD CARS—Geo. P Frick, of Baltimore, Md. : I claim the application of a lever acting temporarily upon the axle of a railway carriage or other wheeled vehicle, in combination with the pulley and chain, substantially as set forth, and whether the pulley is of uniform or different diameters, as described.

I also claim such lever, in combination with the ratchet wheel and catch, substantially as set forth in their application to railway or other wheeled vehicles.

I also claim the cord whereby the lever may be loosened from the catch at the will of the driver, in combination with the said lever and catch pulley and chain, when applied to a railway carriage or other wheeled vehicle.

I also claim the combination of the catch and ratchet wheel with the chain and weight described in the foregoing specification, whereby the engaging and disengaging of the catch is operated by the motion of the draft bar, substantially as described.

LEGS FOR PIANOS—Felix Gelin and Chas. Gelin, of New York City ; We claim the glass socket, F, so mounted in the legs of musical instruments, that the escape of sound from the instrument to the floor is checked, without injuring the appearance or endangering the strength or durability of the instrument.

MONEY BOXES FOR STAGES, &C.—T. W. Gibbons, of Franklin, N. J. : I claim, first, The box, A, provided with the drawers, B D, the former having a flap or door, h, in its bottom, and arranged to operate substantially as and for the purpose set forth.

Second, The change slide or plate, G, one or more used in connection with tubes, s, and arranged relatively with drawer, B, to operate substantially as and for the purpose set forth.

Third, In combination with the drawers, B D, and change plate or plates, G, the bell, g, and index, n, and dial, o, arranged substantially as and for the purpose set forth.

[The public who ride in, and the proprietors who own, stages, omnibuses, and other public conveyances, are exposed to being cheated by the drivers or money-takers with the present arrangement of paying the fares to them. This invention consists in having a drawer or till placed within a box, and arranged with a lever, change slides and plates, and supplemental drawers, an alarm and an index or dial, all arranged so that passengers may deposit their fares in a drawer and take the necessary change therefrom in view of the driver, without the latter having any control over the money which is safely locked in the box, to be taken therefrom by the proprietor or his agent at the end of the route.]

SAFETY CAGE FOR COAL SHAFTS—D. Glover, of Township, of Cass, Schuylkill County, Pa. : I claim the construction of the cage in two separate sections, separated at the guides, and so connected by hinges at the top of the bottom of the sill that, when the rope or chain used in hoisting breaks or the power ceases to operate, the cage shall open at the top where the sections are joined, and the light and weight of each section shall operate as a lever and weight to force the iron shoe on the ends of the sills and pieces, B B, powerfully against and into the guides, and by this means entirely prevent the dropping of the cage and car down the shaft.

CLEANING SPINNING MULE CARRIAGE TOPS—Robert Greaves, of Philadelphia, Pa. : I claim the described mode of cleaning mule carriage tops, or any mechanical equivalent therefor.

WIND-WHEELS—W. L. Gregory, of Theresa, N, Y. : I claim the arrangement of the main vane, K, and the regulating vane, L, to operate in combination with the wings, E, substantially as and for the purpose described.

[By the use of this wheel an even and regular motion is obtained no matter what be the force of the wind, as the position of the vane is regulated according to the strength of the breeze by a main vane that moves with the wind and operates them.]

ROCKING CARRIAGE—Albert C. Griswold, of Hartford, Conn., and Wait R. Griswold, of Durham, Conn. : We claim the employment of the rockers, A, in combination with the seats or cribs, B, as and for the purpose described.

Also the railway track or frame work, D, with the cords or rods, E, springs, F, when used as and for the purpose described.

Also the employment of the elastic substance, H, attached to the rocker, for the purpose as described.

PADDLE-WHEEL—John W. Harris, of Durhamville, N. Y. : I claim constructing paddle-wheels for boats in such a manner that the paddles may be folded laterally upon the frame and the wheel thereby withdrawn from projecting beyond the sides of the boat, or extended at pleasure, whether the boat be in motion or at rest, the paddles, H, being connected to the frame work, A and D, substantially as described, and their outer edges of the form shown, the whole operating substantially as set forth.

ROTATING DUMPING CAR—William A. Hawkes, of Corinth, N. Y. : I claim the arrangement and combination of the rotating platform, C, provided with dumping boxes, L, with the shaft, K, and gearing, D E H b G i i' m, and the clutches, d j, substantially as herein shown and described, so that the car may be propelled and the dumping boxes rotated by turning shaft, K, as desired, all as set forth.

[The object of this invention is to obtain in a compact form a dumping car of great capacity, so that steam power may be advantageously applied to it for its propulsion and the car manipulated with facility. It consists in having a series of tilting boxes or bodies attached to a platform which rests on rollers, the platform being fitted on a proper truck, and so arranged that the power of the engine may at any time be transferred from the gearing through which the car is propelled to that connected with the platform to which the tilting boxes are attached, and said platform, while the car is stationary, be intermittently rotated, so that the boxes may be successively tilted and their contents discharged at the proper or desired point.]

MATTRESS—Henry W. Henley, of New York City : I claim the use or employment of the serrated section, B B, when the same shall be combined for the purpose specified.

HARROWS—J. Herald and C. B. Tompkins, of Trumansbury, N. Y. : We claim the arrangement of the plates, B B', with recesses, a a' and b b', and projections, c c', and with a hole in their center for the purpose of securing the bars, A A', and the tooth, C, substantially in the manner specified.

[This is an improvement in the construction of harrows with iron frames, and it consists in arranging two plates with suitable recesses and with a central hole in such a manner that the same serve to secure the bars that constitute the frame at those places where they cross each other, by the same nut that secures the tooth to the plates.]

MACHINE FOR MOVING IRON AT THE ROLLS—Charles Hewitt, of Trenton, N. J. : I claim the movable floors, platforms or supports, A B, for moving iron or other metal at the rolls while in process of manufacture, constructed and operated as described, or otherwise substantially the same.

MACHINE FOR WORKING BUTTER—Gideon Hotchkiss, of Windsor, N. Y. ; I claim the combination of the lever stern ladle and oblong bowl by means of the revolving joint, the projecting cope and follower ladle, substantially as described.

LOOM TEMPLES—Wm. H. Howard, of Philadelphia, Pa. : I claim the rollers, D and D', twining in bearing or steps, arranged to yield independently of and in contrary directions to each other, on the opening of the warp threads, substantially as and for the purpose set forth.

CONSTRUCTION OF PRISONS—Enoch Jacobs, of Cincinnati, O. : I claim a secret passage or guard chamber around the outside of an iron plate jail, and between said jail and a surrounding enclosure, constructed and arranged substantially as described for the purposes set forth.

MANUFACTURING KNITTED FABRICS—Joseph K. Kilbourn, of Pittsfield, Mass., and Edwd. E. Kilbourn, of Litchfield, Conn. : We claim the new knitted fabric described, composed of columns of stitches oblique to each other, having openings at the places where the oblique columns of stitches diverge, the same being a new article of manufacture.

SAW FILING MACHINE—T. E. King, of West Andover, Ohio : I claim the suspending the file holder upon arms, as herein set forth, so that it is susceptible of adjustment horizontally, vertically and obliquely, and in combination with the curved faced slot in the holder, as described.

MACHINE FOR SAWING CIRCULAR BEVELS—John Lemman, of Cincinnati, Ohio : I claim the adjustable rest, e, hinged to the bed, f, in the manner described, and adjustable vertically with reference thereto, substantially as and for the purposes set forth.

BUNG CUTTER—Josiah Kirby, of Cincinnati, Ohio : I claim the mode of pointing the lower or last end cut off the plug or bung by forcing it into a separate dog, made and used substantially and for the purpose as described.

I also claim the mode of lifting the plug out of the dog, after it has been compressed, by means of rod, G', when operated in the manner and for the purpose described.

I also claim the mode of driving the plug out of the cutter into the compressing dog, by movable rod, as at a, Fig. 3, when operating in the manner and for the purpose described.

ADJUSTABLE HAMMER FOR REVOLVING FIRE-ARMS—Alex. Le Mat, of New Orleans, La. : I claim providing the hammer with a hinged head, so arranged that it shall present the same face in different directions for the purpose of discharging, in succession, different barrels, or a grape shot pistol and a revolving fire-arm, as may be desired, and providing the same with small lateral wings for locking the revolving chambers in position, in the manner and for the purposes set forth.

AUTOMATIC FINGER FOR CLOSING THE VENT OF CANNONS, &C.—Alex. Le Mat, of New Orleans, La. : I claim first, The apparatus, B and B', with automatic finger, C, substantially as described.

Second, The inclined plane, H, in the manner and purpose described, or as an equivalent, the inclination of the slot of the percussion lock, for the purpose set forth.

COMPOUND RAILROAD AXLES—H. J. Lombaert, of Philadelphia, Pa. : I claim the divided tubular axle, A and A', and the solid undivided center piece or mandrel, C, when the same are constructed and combined together, with each other and with the wheels, B and B', so that the two said tubular parts, A and A', shall project through their respective wheels and form their journals, and also rotate out of contact and independently of each other, substantially in the manner and for the purposes set forth and described.

FURNACE GRATE BARS—Warren S. Low, of Albany, N. Y. : I claim the combination of the corrugated and circular removable face piece, C, with the body, A, of a furnace grate bar, in the manner and for the purposes set forth.

SHOE SOLE—Wm. J. Lyman, of East Hampton, Mass. : I claim the use or application or employment of a metallic in-soles to shoes, boots, &c.

HARVESTING MACHINES—H. H. Luther, of Warren, R. I. : I claim, first, Attaching the finger bar, P, to the frame, J, suspended on the shaft, K, and fitted between bars, J J, on frame, G, and arranged on shaft, H, substantially as shown, so that the finger bar, D, and sickles may, when necessary, be elevated, placed directly over the main wheel and shaft, as described.

Second, Adjusting the finger bar, P, and sickles, r r, in a more or less inclined position, in order to cut the grass or grain the desired hight, by having the finger bar attached to a circular frame, G, fitted on the arm of the driving-wheel, F, and secured at the desired point by means of the lever, I, and projections, or any equivalent fastening.

Third, The arrangement and combination of the frames, J G, applied to the driving wheel, F, in connection with the gearing, w t' t' u and v v, respectively, on the wheel, F, shafts, t t, and in the frame, J, substantially as and for the purpose set forth.

[The object of this invention is to place the finger bar and sickle completely under the control of the driver, so that the sickle may, with great facility, be raised over obstructions, be adjusted to cut the grass or grain at any desired hight from the ground, and also be raised and adjusted over on the body of the machine when the latter is not in use or is being moved from place to place.]

BURNISHING MOLDINGS—Robt. Marcher, of New York City : I claim attaching a self-adjusting burnisher, I, to a reciprocating plate or carriage, C, when used in connection with a molding, N, suspended and attached to the machine, in the manner as shown, or in any equivalent way, to admit of being acted upon by the burnisher, for the purpose set forth.

[Burnishing moldings is now usually performed by hand, and is a tedious and slow process. By this machine it can be done much quicker and in a more uniform and perfect manner. The burnishing tool is attached to a reciprocating slide or carriage, and the molding to be burnished is fitted between center points or in a laterally sliding frame, either or both, to attain the object in view.]

MACHINES FOR FINISHING BRICKS—W. S. Mayo, of New York City : I claim the combination of the box, A, plunger, B, and plates, K, with or without the feed block, F, substantially as and for the purpose set forth.

[This is an improved machine for giving a smooth even surface to bricks previous to the burning, and after they have been properly dried. These unburnt bricks, technically termed "clots," by being subjected to a requisite pressure within metal molds have their sides smoothed, and present, when burned, a finished appearance, having a smooth, compact and even surface with angular corners. Bricks of this character are generally used for facing houses of a superior class and are considerably more expensive, on account of the labor hitherto required in their manufacture, a great portion of the labor being due to the inefficiency of the machines used for finishing the "clots." The object of the invention is to expedite, and so cheapen the process; and it is so arranged that steam may be used as a motor, and provision made for the varying thicknesses of the "clots."

MANUFACTURE OF INDIA-RUBBER BLANKETS OR APRONS, USED IN THE PRINTING OF FABRICS, BOOKS, &C.—Chas. McBurney, of Boston, Mass. : I claim bringing the blanket to a uniform thickness and smooth surface by passing it between a revolving emery roll and a revolving feed roll, so arranged with respect to each other that the surface of the feed roll shall be ground by the emery wheel, as set forth, for the purpose specified.

ROTARY HARROWS—J. W. McLean, of Lebanon, Ind.; I claim the combination of the specified obliquely set teeth, with two or more harrow frames revolving in opposite directions, substantially as and for the purpose set forth.

[Two revolving wheels are connected to a common draft pole in such proximity to each other that the teeth, which are arranged on the circumference of the wheels in an inclined position, serve to clean each other as the teeth of one wheel pass by those of the other.]

SEWING MACHINES—James S. Moody, of Cincinnati, Ohio : I claim the employment of an endless belt, arranged and operated as described, to carry one or more hooks to draw the thread through the cloth, in the manner described.

I claim the tension collar, G, embracing the thread and needle, and operating to hold the thread, in the manner set forth.

I claim alternately holding and releasing the double pointed needle by means of sliding keys, c and c', operating so as to pass through notches, d d, towards the ends of said needle at the proper times, arranged and operating substantially in the manner set forth.

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TRUSS FOR ROOFS, BRIDGES, &c.—Saml. J. Reeves, of Philadelphia, Pa., and Montgomery C. Meigs, of Washington, D. C.: We claim the mode of trussing or stiffening a curved or arched beam or rafter for bridges or roofs by means of tension rods or ties of metal, wood, or other suitable material, connected at their outer ends with the arched or curved beam or rafter at various points, and converging towards and connected together at their inner ends at a point within the space contained between the arc or arched or curved beam or rafter and the straight line joining its extremities, substantially as described and as represented in the drawing and model.

APPARATUS FOR DRYING GLUE—M. Newbauer and P. Adelman, of New York City: We claim the arrangement of a chamber of circular or polygonal form, which is provided with a fan blower, or its equivalent, to which air of the proper temperature is conducted by means of a pipe, b, and tube, E, for the purpose of drying the cakes of glue, substantially as described.

STEAM BOILERS—Wm. Oldman, of Buffalo, N. Y.: I claim the central water space, F', in the combustion chamber, F, arranged in relation to the annular water space, F'', and to the tubes, D, or their respective equivalents, substantially as set forth, for the purpose of inducing an active circulation of the water radially among the tubes, with the advantages explained.

APPARATUS FOR EXHIBITING STEREOSCOPIC PICTURES—Stuart Perry, of Newport, N. Y.: I claim, first, A movable frame-work for holding a series of stereoscopic pictures, from which the pictures are brought to be inspected and then returned to it again by a mechanism operated by the user, substantially as described.

Second, I also claim bringing each individual picture or pair of pictures, in succession, to the same point or place, before they are projected from their compartments to be exhibited, by mechanism substantially such as described.

Third, I also claim, in combination with a movable picture holder, a reciprocating carrying frame, that catches each picture, or pair of pictures, in succession, and carries them to the place where they are to be inspected, and returns them to their compartment again, substantially as described.

Fourth, I also claim, in combination with a box or case, containing within it a series of pictures and a mechanism for projecting them from said case, a frame-work on the outside of said box or case for receiving said pictures, substantially as described.

Fifth, I also claim the slots in the picture holder barrier, f, and in the box or case, so that the picture, from its compartments in the picture holder, may be projected through both slots or openings to the outside of the box, substantially as described.

Sixth, I also claim the friction b ake, t, or its equivalent, for holding the picture holder and prevent it from moving until started by the crank, substantially as described.

Seventh, I also claim making the frame, B, in sections, or with an opening, for the purpose of introducing the pictures through said frame into the compartments of the picture holder as well as removing them therefrom, substantially as described.

Eighth, I also claim the clamps, as applied to single or double pictures, for the purpose of strengthening them, preventing their warping or bending, and thus facilitating their passage through the slot, which they must pass through, to the place where the are exhibited, as described.

MACHINERY FOR DRYING PAPER—Edward L. Perkins, of Roxbury, Mass.: I claim a new mode of drying paper, which consists in feeding the paper from a roll outside of the drying chamber, through proper openings, to a series of rollers, arranged as described, and then conducting it over said rollers, vertically, through the apparatus, and subjecting it, during its passage, to a gentle current of heated air, produced by forming inlets at the bottom for the reception of the atmospheric air, which passes up and is heated by a suitable heating apparatus, and escapes readily through apertures at the top, as set forth, and then out of the drying chamber through proper openings to a receiving roller, in the manner substantially as described.

TAIL PIECES FOR VIOLINS—John Pfaff, of Philadelphia, Pa.: I claim the metal tail piece, A, with an eye, a, adapted to the detachable pin, h, recesses, 1 2 3 and 4, for the reception of the strings, and with the rib, h, the whole being constructed and applied to a violin, substantially as and for the purpose set forth.

CUTTING OUT STRAP HINGES—Saml. M. Richardson, of New York City: I claim the relieving die, d, in combination with the shaping die, f, and cutter, g, in the manner and for the purposes specified.

DUST-PAN—J. Hall Rohrman, of Philadelphia, Pa: I claim, as a new article of manufacture, a dust-pan, having its bottom corrugated and its back edge seamed over, substantially as described, for the purposes of making the bottom of the pan rigid without extending any brace from the handle, and rendering unnecessary the wiring of the back edge of the pan.

FURNACES AND STOVES—Charles B. Sawyer, of Fitchburg, Mass.: I claim, first, The arrangement of the closed topped fire-pots K, gas or combustion chamber, X, fire or draft flues, H, small gas openings, e, and air-heating flues, G, in relation to each other, substantially as shown and described.

Second, The arrangement of the horizontal ventilating flue, J, ventilating chamber, I, and exit ventilating flue, O, and right angled draft flue, F, in relation to each other and in the top of the furnace, as shown and described.

SPRING BEDSTEAD BOTTOMS—Geo. Schott and John Loudon, of New York City: We claim the arrangement of the eyes, d d, elastic cord or strap, 1, and hooks, 2 2, on the ends of the slats, c c, substantially as and for the purposes specified.

We also claim the studs, 3 3 and 5 5, constructed and acting as specified, to sustain the slats, c c, on the strap or elastic cord, 4, as set forth.

GRINDING MILLS—Joseph Sedgebeer, of Cincinnati, Ohio: I claim, first, Constructing the rotating plate, A, with the same dress or finish upon its grinding face as that of the stationary plate, B, substantially as described, for the purposes set forth.

Second, I claim the diamond-shaped teeth, a b c e, constructed and arranged substantially as and for the purposes set forth.

MEANS OF SECURING THE BITS OF BENCH PLANES—Chas. W. Seely and Benj. F. Locke, of Wellington, Ohio: We claim stopping the upper end of the interposed bit below the screw, and upsetting it so as to catch into the cross serrations in the bed-piece, as set forth.

MODE OF SWITCHING OFF RAILROAD CARS FROM ONE TRACK TO ANOTHER—M. Semple, of Philadelphia, Pa.: I claim the immovable switch or turnout, J P, in combination with the guide bars, G: when arranged and operating substantially as described.

MACHINE FOR RAISING WATER—Peter Shank, of Jefferson Township, Ohio: I claim the combination of the horizontal float wheel, the crank motion (as produced by the three pins) which gives six motions of the pump to one revolution of the wheel, and the horizontal double pump, substantially as described, for raising water.

OPERATING MACHINERY BY DOG POWER—Dexter C. Slater, of Lawrens, N. Y.: I claim the arrangement and combination of the wheel, G, shaft, F, cam, H, and lever, I, substantially as and for the purpose set forth.

[In this economical age even the dog is no longer allowed to waste his master's time by lazily passing the day, but is expected to do his quota of work. This invention is an arrangement whereby a dog may be made to work light machinery such as churns, grindstones, and the like.]

CHEESE-CUTTERS—De Witt Stevens, of Newark, N. J.: I claim, first, The arrangement of the platform, B, with the projecting rings, g, to operate in combination with the corrugated cutting edge of the knife, substantially as and for the purpose described.

Second, The arc, D, arranged in combination with the platform, B, with the handle, C, and with the handle, C, and with the knife, F, so that the cheese on the platform can be cut up in slices of any given weight, substantially as set forth.

Third, The arrangement and combination of the lever, I, the link, J, and the slide, G, for the purpose of operating the knife, F, substantially as specified.

[With this cheese-cutter it is easy to cut a slice down to the bottom and through the rind, and the cheese, by being placed on a graduated platform, can be cut into slices of any desired weight.]

ROCKING CRADLE—W. D Tewksbury, of Cuylersville, N. Y.: I claim the two escapement wheels, h and k, arranged in combination with the verge, E, and with the arm, F, and operating substantially in the manner and for the purposes described.

[Mothers will think much of this invention, for it saves them all the trouble of rocking the cradle which contains "the precious baby," as all they have to do now is to wind up the spring and the cradle begins and continues to rock without any trouble.]

METHOD OF PRINTING BANK NOTES—Alfred Tichenor, of Newark, N. J.: I claim, first, The making bank notes and other engraved plates, or sections of plates, with tongue and groove or dowel joints.

Second, The locking-together tongue and grooved bank note or other engraved plates, by a chase, having its formed with tongue or groove, or with dowels made to match or correspond to the ends and sides of the tongue and grooved plate, which chase is made in pieces, fitted together and furnished with set screws, e e, substantially as described.

BEE-HIVES—Ruggles S. Torrey, of Bangor, Me.: I claim providing the troughs in the tops of the combbars, arranged with the series of conducting tubes for conveying the feed to the troughs, and with apertures or slots for the free exit of the moisture to the condenser, in the manner and for the purpose described.

BRICK MACHINES—Wm. S. Watson, of Madison, Ind.: I claim, first, The combination and arrangement with a stationary pressing block, K, of an intermittently reciprocating press-box, formed with one or more chambers, I J, and provided with one or more plungers, L L', having a joint motion with the press-box and an independent movement thereto, essentially as and for the purpose set forth.

Secondly, The combination, with the intermittently reciprocating press-box, of the top and bottom holding slides, b b', or either of them, arranged to move conjointly with the press-box and independently of it, substantially as specified.

Thirdly, Mounting the intermittently reciprocating press-box with a feed-box, having one or more chambers, M M', essentially as and for the purpose set forth.

MACHINE FOR FINISHING LEATHER—T. F. Weston, of Salem, Mass.: I claim, first, The combination and arrangement of the devices herein described, or their mechanical equivalents, for changing the angle of the tool while the machine is in motion, so as to cause it to operate upon the latter, first with a sharp edge, to take out its inequalities, and then with a dull or blunt edge, to smooth the leather, the successive operations producing the peculiar effect desired, for the purposes as set forth.

Second, The arrangement of devices herein described for giving positive motions to the tool, for lifting it from and holding it down upon the bed, the same consisting of the sliding barand friction box, operating as set forth.

OMNIBUS REGISTER—Robt. F. White, of New York City: I claim the spring platform, B, arranged in combination with the hammer, K, and with the in lex, k, and operated by the lever, F, or its equivalent, substantially in the manner and for the purpose specified.

[By this invention each passenger, as he or she pays the driver, is registered, by means of an index on a dial, so that the number of fares received by the driver can always be accurately known by his employers.]

LOCK ATTACHMENT—John M. Wilson, of Philadelphia, Pa.: I claim the arrangement, in combination with a lock, A a, and door, B d, of the box, C, keyholes, c b, wards, e, guard, E, plate, F, pivoted stops, G G h h i i, and springs, H H, the whole being constructed and arranged for united operation, in the manner and for the purpose set forth.

[To a lock of ordinary construction this inventor attaches a box, provided with wards, key-holes, and a revolving guard, so arranged as to prevent the lock being picked, and also preventing access to the working parts of the lock, so that an impression in wax cannot be taken, with a view of constructing keys to fit the lock.]

WASHING MACHINE—Samuel Wiswall, of Hyde Park, Vt.: I claim the arrangement and combination, within the oscillating cylinder, B, of a receiving chamber, d, having plates, e e, and a door, f, when said door, f, is corrugated on one side and hinged to one of the plates, e, so that said door, f, may serve as a rubbing-board and also as a presser; all substantially as shown and described.

[The object of this invention is to obtain a very simple clothes-washing device, by which manual labor can be made to assist the mechanical operation in a very facile way, and the parts of the clothes that cannot be perfectly cleaned by the machine alone, finished in an expeditious and perfect manner by the attendant without removing them from the machine.]

CULTIVATORS—John Young, of Joliet, Ill.: I claim, first, The combination of the screw-extension, A, on the bottom of the standard, B, with the oblique slotted castings, C C, attached to the front side of the cross-bar, D, of the beam, E, substantially as and for the purposes set forth,

Second, The combination of the stationary vertically perforated bar, G, with the adjustable rake or harrow, 1f, arranged on a cultivator, substantially as and for the purposes set forth.

BURGLARS' ALARM PISTOL—John G. Clark, (assignor to himself, D. G. Cotting and Samuel W. Hatch,) of Augusta, Ga.: I claim, first, A pistol arranged on a vertical suspension guide of a hammer, so that the explosion of its cap and the firing of its charges may be accomplished by concussions of the pistol and hammer, substantially as and for the purposes set forth.

Second, Holding the pistol suspended by the means and in the particular manner described for the purpose set forth.

MACHINES FOR TEMPERING CLAY—J. D. Custer, of Norristown, Pa., assignor to himself and J. M. Roberts, of Perth Amboy, N. J.: I claim the arrangement and combination of the stationary toothed rim, O, encompassing the pit, A, the frame, H, with the gearing, k M l, attached to its outer ends; the pinion, b, of the shaft, N, gearing into the rim, O, and the rod or shaft, F, connected with the frame, H, the hollow shaft, g, on the shaft, B, and the belt, e i, passing around the pulleys, K f h j, substantially as and for the purpose set forth.

[This invention relates to an improvement in that class of machines which are used for tempering clay, and similar purposes, and which are composed of a wheel placed on a radial shaft and made to rotate within a circular pit. The improvement is in driving or propelling the wheel, whereby any power—steam, water or animal—may be applied in a very simple and economical manner, and in a way less calculated to injure or rock the working parts than hitherto, thereby enabling machines to be constructed much less cumbersome than usual, and that will take much less power to drive them.]

STEERING APPARATUS—Wm. Goodsoe, (assignor to himself and Isaac Ayres,) of Manchester, Mass.: I claim the combination of the toothed segment, M, and the curved way, P, operating as set forth, for the purpose specified.

STOVES—C. Harris and Paul W. Zoiner, (assignors to themselves and J. Langstaff,) of Cincinnati, O.: We claim the arrangement and combination of the damper, G, chamber, f, double-walled case, a, and pipe, E, substantially as shown, so that the damper, G, which pertains to the oven, shall, when drawn out, extend across the bottom of the pipe, E, and cause the products of combustion to circulate as described, and when closed shall permit a more direct draft, for the purposes set forth.

[This stove is one of those which may be used as heat-diffusers and cook-stoves, and yet have an ornamental appearance, equally so as if intended only for heaters. The invention consists in a novel oven-attachment, which may be applied to the stove and removed therefrom as occasion may require.]

APPARATUS FOR HEATING WATER—Geo. L. Ingersoll, (assignor to J. E. Ingersoll,) of Cleveland, Ohio: I claim the double cylinder heater, C C, the same being united by the plates, G F H I, so as to form the space, J J, for the ascension of the heat, and by the pipes, D E, for the passage of the water, the heating space being covered by the cap, K, and the parts here named being arranged as set forth.

I also claim, in combination with the two cylinders, C C, the ingress-pipe, O, extending to near the bottom of the cylinder, C, the exit-pipe, O', and the pipe, N, in connection with the pipes, D E, for the purpose of establishing a circulation and rapid heating of the water.

SHOE-KNIVES—Ira Merritt, of Abington, Mass., assignor to himself and L. S. Merritt, of Weymouth, Mass.: I claim the described knife-holder, in combination with an extensible blade, so arranged that as the blade is worn it may be protruded, as set forth, for the purpose described.

SPIRIT GAS BURNERS—Charles Miller, (assignor to Henry Danford,) of St. Louis, Mo.: I claim the arrangement of the valve over the tube and wick, for the purpose of extinguishing the flame, or regulating its size and altering its direction, in the manner set forth.

DIAPHRAGM FOR PHOTOGRAPHIC CAMERAS — Felix Miller and Alois Wirsching, (assignors to Felix Miller and H. H. Hayden,) of New York City: We claim the arrangement and combination of the plates, a a', the notched plate, C, and springs, m, as and for the purpose shown and described.

[A number of curved plates are placed in a tube in front of the lens, so as to form apertures of different sizes for increasing or diminishing the intensity or sharpness of the light into the camera from the object, in taking photographic pictures.]

POWER PRINTING PRESSES—Jedediah Morse, of Canton, Mass., assignor to the S. P. Ruggles Power Press Manufacturing Company, of Boston, Mass.: I claim the improvement in the construction of each of the platen rails, a3 a3, the same consisting in the chute, k, and a notch or depression, l, arranged therein and with reference to the rollers or tapes, substantially in manner and for the purpose as specified.

I also claim the arrangement and combination of the slider, R, with the operating [illegible] pin, or stud, O, or the rocker toggle, such slider being actuated by a foot-treddle, n, a spring, q, and the cam, r, of the toggle, substantially as described.

I also claim the mode of insuring the return movement of the toggles, and their gradual forward motion, after each impression has taken place, the same being accomplished by the notched wheel, u, or its notch, x, as described.

I also claim the mode of constructing the gears, a' and b', for operating the frisket-carrier, viz: with the toothed arcs, c' c' d' d', and the concave and convex arcs, e' e' and f' f', unprovided with teeth—the whole being arranged so as to operate together, substantially as specified.

I do not claim the subject of the United States patent No. 7,205; but I claim the combination of the two, or any other suitable number of wheels, r2 r2, lever nippers, t2, (applied respectively to them,) and their opening and closing bars, x2 y2, or mechanical equivalents for such bars, the same being substantially as and for the purpose described.

I also claim the specified mode of constructing each of the nippers, v v, for receiving the sheet of paper from the table, G, viz: so that each jaw may move away from the other while the upper is being raised; the same producing the advantages not only of insuring the passage of the lower jaw underneath the sheet of paper simultaneously with that of the other jaw over it, but of both jaws closing upon the paper at one and the same time, so as not to lift it out of place.

I also claim the mode of constructing the lower jaw, g4, of each pair of nippers, v, viz: with a lip or bend, n', arranged thereon and for the purpose described.

I also claim the mode of applying and operating each of the points, l 2, viz: hinging or jointing it to the table, G, and combining with it a stop, m2, and lever, k2, or the equivalents therefor, the whole operating or being made to operate substantially as described.

I also claim the improved method of operating the frisket-carrier, the same consisting in causing it to descend and pass in an inclined position under the delivering tapes and rollers, while the nippers, v v, may be approaching the sheet table, G, the same enabling the press to be made lower and shorter than when the frisket-carriage is moved horizontally under the said delivering tapes or rollers.

MACHINERY FOR CUTTING COMB TEETH—Wm. Noyes, Jr., of West Newbury, Mass., assignor to S. C. Noyes & Co., of West Roxbury, Mass.: I claim, in combination with the saw, or the same and its peripheral guide or guides, a mechanism or means of pressing or bending the saw laterally, substantially as and for the purpose specified.

I also claim the mode of producing the lateral and longitudinal movements of the carriage of the comb-carrier, viz: by means of the cam and its screw-thread periphery, arranged and operating in conjunction with a rack applied to the said carriage, substantially as described.

MACHINE FOR CONVERTING OSCILLATING MOTION INTO DIRECT CIRCULAR MOTION—Louis Planer, (assignor to himself and Joseph Auger,) of New York City: I claim the grooved dog, F, having its tail resting in a recess, b c, or equivalent resting place, in the lever, E, without being pivoted or otherwise attached thereto, and having a spring, G, applied in combination with it and the said lever, and the whole being applied and combined with the wheel, A, and its axle, E, substantially as described.

[This is a novel arrangement of a dog, a lever, and and a spring, in combination with each other and with the smooth rim of a wheel, whereby an oscillating movement is imparted to the lever by suitable means causes the dog to operate with great certainty to turn the wheel in one direction only.]

HOOKS FOR VEST CHAINS—Anthony Wallach, (assignor to himself and Adolph Wallach,) of New York City: I claim the clasping hook, c, in combination with the bolt, i, in the body, b, of the vest chain hook, for the purposes and as specified.

MOLDS FOR PRESSING GLASS—Thos. Shaw, (assignor to himself and John C. Bailey,) of Philadelphia, Pa.: I claim forming on the plunger, B, a shoulder, f, of a size corresponding to that of the upper edge of the recess in the base, A, of the mold, and limiting the downward movement of the plunger, so that the said shoulder shall coincide, or be slightly below the said upper edge of the recess, substantially in the manner and for the purpose set forth.

PLUG BEDSTEAD FASTENING—Jacob J. Smith, (assignor to himself and J. H. Pugh,) of Philadelphia, Pa.: I claim, first, A double plug fastening for bedsteads, consisting of the two distinct parts, A and A, so constructed as to be adapted for being driven or secured into the post and rail respectively, and also fitted with a wedge-shaped dovetail tenon, d, and a corresponding groove, e, operating together so as to cause the end of the rail to be drawn tightly against the post, in the downward pressure of the said rail, after they are connected together—all substantially in the manner and for the purpose set forth and described.

Second, I also claim making the post-plug, A', with the inclined dovetail groove, g, across in one side of the same so as to operate in combination with the wedge-shaped tenon, e, on the rail-plug, A, substantially in the manner and for the purpose set forth and described.

DESIGNS.

SEWING MACHINES—Solomon B. Ellithorp, of New York City.

COOK STOVE—Anthony J. Gallagher and Jacob Beesley, (assignors to Anthony J. Gallagher,) of Philadelphia, Pa.

INVENTIONS EXAMINED at the Patent Office, and advice given as to the patentability of inventions, before the expense of an application is incurred. This service is carefully performed by Editors of this Journal, through their Branch Office at Washington, for the small fee of $5. A sketch and description of the invention only are wanted to enable them to make the examination. Address MUNN & COMPANY,
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Plants in Rooms.

In the crowded city, amid its dust, smoke, turmoil and troubles, it is pleasant to find a memento of the country in the opening rose and the modest daisy. When we see a pot of flowers adorning the window of a room, however humble in appearance the domicile may be, the feeling arises spontaneously in the mind that they are fostered by the gentle hand of some one whose tastes are true and tender. A few words on the culture of plants in rooms may be beneficial to many persons at this particular season of the year. They should be placed in a situation where they can receive an abundance of light and air; otherwise they will become sickly. Exposure to the dews at night (where this can safely be done in cities), then taking them in next morning, greatly promotes their health.

Plants are frequently injured by injudicious watering. Some persons seem to suppose that deluges of water afford a sure remedy for all the evils to which plants are subject. This is a mistake. True, they require a considerable amount of moisture, but not one half the quantity which is oftentimes applied. Evening is the best time to water them, and in every case, cold water from a cistern or a pump should be avoided. The water should be warmed by exposure to the sun, or in some other manner, up to the temperature of the atmosphere before it is used. Many plants are greatly retarded in their growth by cold water being poured upon them. The quantity to be applied varies with the size and nature of the flower; the ground should be thoroughly moistened, but not soaked. If the leaves should become infested with insects, some tobacco juice, mixed with water and sprinkled over them, will soon destroy these. The great feature in cultivating plants, to promote their health, is that which is equally efficacious with human beings—cleanliness.

Improved Seed-Planter.

Joseph McKown, of Geardstown, Va., has patented (May 24, 1859) a seed-planter, in which a horizontally-moving hand lever, divided hopper, &c., are so combined as to produce a very effective and simple machine. It is said to work equally well on smooth or rough soil, and is very highly spoken of by these who have had it in use.

CALIFORNIA WINES—The San Francisco *Herald* states that the present stock of California vines now under cultivation will yield $50,000,000 of wines and brandies in twenty years from the present day. The wine product of the Golden State increases at the rate of 50 per cent annually, and the quality of these is equal to the best imported. In all wine-growing countries, where the people use wine at their tables and where a bottle of it can be obtained for three or four cents, drunkenness and bar-rooms are unknown.

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New Inventions.

SEEING IN A FOG.—In a communication to the Paris Academy of Sciences, Sir David Brewster says: "Whilst I was studying the polarization of the atmosphere, I observed this remarkable fact, that where distant objects are rendered indistinct by the interposition of a light fog, a part of their definiteness may be restored by looking at them through a nicol-prism which stops all the light the fog has polarized in a plane passing through the sun, the object, and the eye of the observer. The objects, thus made more distinct and visible, were seen in that portion of the fog in which the polarization of the reflected light was at maximum."—*Comptes Rendus.*

Kaleidoscope Toy.

Under the above caption the London *Engineer* states that a beautiful philosophical toy has lately been exhibited at the rooms of the Society of Arts in that city. Is is a top with a flat disk of wood, and a spindle in its center, by which it is set in motion with a string. On the upper surface of the disk cards of various colors and shapes are placed, and held by pins, and the top is set in motion. This produces pleasing effects, as a blue and yellow card exhibit a green color; a red and blue card a purple, and a red and yellow card an orange color. By taking a black card pierced with holes, and held steady above the rotating colored cards, the eye sees through the openings a most beautiful play of colors. They dance and waver in the outline of the perforated black card in a manner that appears magical. These effects are due to the fact that the eye retains for a certain period the impressions of color which it receives, and one impression has not time to be effaced before another succeeds it. The inventor is J. Gorham, who has thus succeeded in making a toy exhibit all the effects of the prismatic wheel which philosophers once employed to represent the prismatic spectrum.

Improved Car Seat.

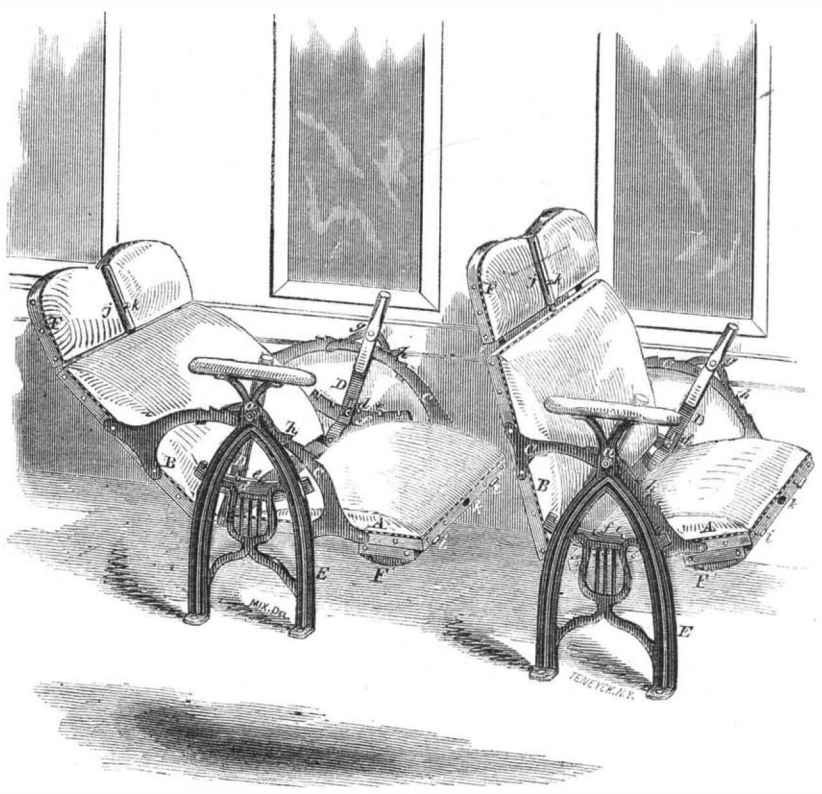
While many like the idea of a sleeping car which will form into a series of sleeping berths at night time and into an ordinary car by day, there are others who prefer to have a seat in which they can either sit, lounge or sleep with comfort at their own pleasure and under their own control. Such a one is the subject of our engraving, which shows two seats—one arranged for sitting and the other for sleeping.

A is the seat and B the back, which are hinged together, and each of them is provided with two serrated arcs, C, which pass through a slot in the piece, D. This piece, D, is attached to the pivot that hinges A and B together, and is suspended by a pin, *a*, from the frames, E. To the top of D a movable handle, *g*, is attached, in which is secured a double pawl, *h*, that catches into the teeth on C, and holds the arcs in any desired position until a pawl or pawls are elevated by *g*, when the angle can be changed. To the side of the car and to the frame, E, are secured arcs, *f*, provided with notches, *e*; and little pawls, *d*, in D, fall into the notches and hold the seat and back in any position; it is by this arrangement that they are reversed, A and B being alternately back and seat, according to the position. To both A and B there is secured a head-rest, F, which, by its hinged attachment, *i*, folds under the seat out of the way and rises flush with the back, where it is held by a bolt, *j*, passing into a slot, *k*, in the back. Let us suppose the seat to be in a sitting position, the occupant need only pull the handles, *g*, toward him, and, by elevating one pawl, *h*, allow the arc, C, to slide through the slot in D until the back had attained the desired angle, when *g* being released, the pawl will fall into a tooth or serration on C and retain the back in its position. The seat can be lowered by pushing the handle, *g*, from the occupant, and the whole can be swung or reversed by raising the latches, *d*.

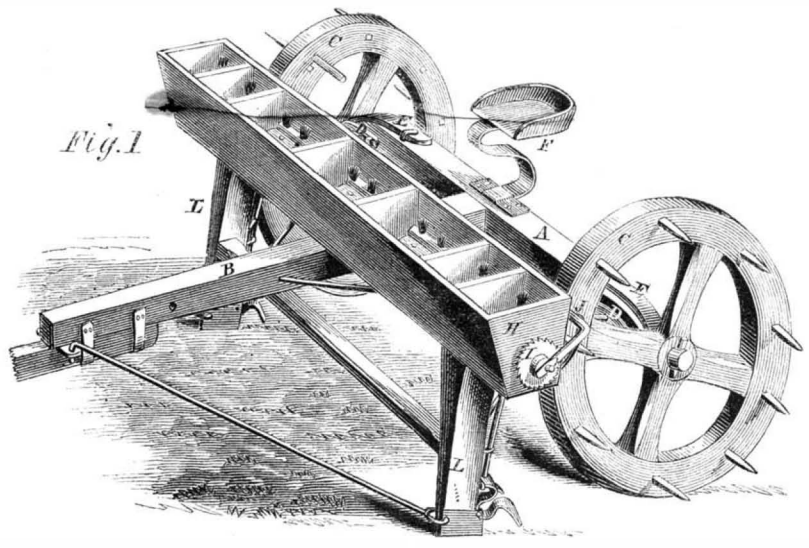
This car-seat allows great freedom to the passengers, every two of them being able to place themselves in any position without reference to the others; and it admits so nearly of a horizontal position as to be a remarkably easy one in which to rest, and any angle between can be obtained for lounging or, familiarly speaking, "taking it easy" during a journey.

The inventor is W. L. Childs, of Piermont, N. Y., who will be happy to furnish any further information concerning the invention upon application. The patent is dated Feb. 1, 1859.

CHILDS' CAR SEAT.



ROOT'S HARROW AND SEED-PLANTER.



The principle of combination, which can do much more than opposition, and which begins in the idea of a nation and organized government, and goes down to the humblest walks of life, is found in machinery as in human beings; and, indeed, as we have had occasion frequently to remark, combination is a peculiar feature of the inventions of the present age. The illustrations before us are another example of this fact, as they represent one and the same machine as a rotary harrow and as a seed-planter. The inventor is M. S. Root, of Medina, Ohio, and he obtained a patent Oct. 19, 1858.

Fig. 2

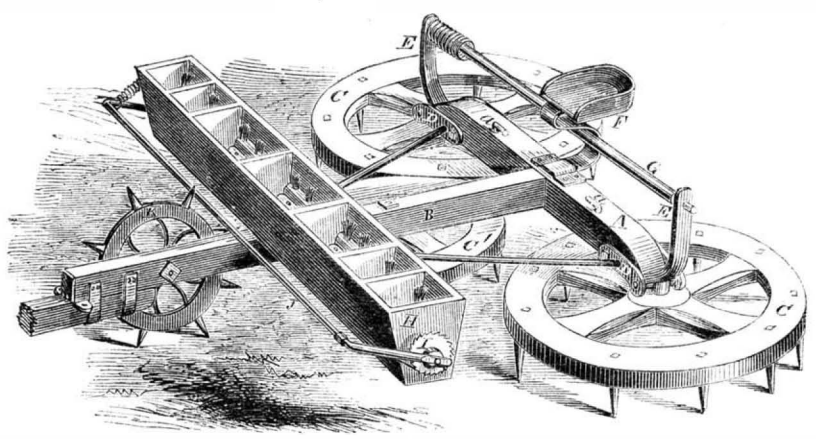


Fig. 1 shows it arranged as a seed-planter. A is the cross-beam, having braces, D, on each end, between which are hinged the axles of the wheels, C. These axles are provided with levers, E, that lie upon A. When C are used as wheels, they are held rigidly to keep the smooth periphery on the ground by small catches, *a*. To A is also secured the driver's seat, F. B is the tongue or draft-pole on which is secured the seed-box, H, that can be used for broadcast sowing. An indented cylinder lies in its base, and is rotated against brushes to measure the seed in each indentation, by having a ratchet wheel, I, on each, and a lever, J, provided with a pawl that, when pressed down by a projecting pin on the inside of C, moves the cylinder by the pawl acting on the ratchet wheel, I; J being brought back by a spring. The seed-box, H, can be adapted to corn-planting by the addition of planters, L, and they can have their measuring and discharging devices operated from J. The seed-box, it will be seen, is divided into compartments, so that it may be made to plant two kinds of seed at once, such as clover and grass, or more, or it can be used as a corn-planter alone. The wheels, C, it will be seen, are provided with spikes projecting at right angles from the periphery, so that, to change it to a harrow as in Fig. 2, all that has to be done is the following:—The catches, *a*, are turned and the lever, E, released, the wheels are then turned over so that the spikes dig into the ground, and a rod, G, with a spring on one end, is placed between the levers, E, to force the outside teeth or spikes of the wheels, C, the deepest into the ground. The seed-box, H, is unscrewed from the draft-pole, B, and moved further along it, and a small vertical wheel, K, is added in front of it. The rod, J, is turned over, and the projections on the wheel, K, keep moving it as the harrow is dragged along, so that seed can be planted while the ground is being harrowed. A supplemental harrow, C', is secured to the draft-pole, and, as will be seen on reference to the engraving, an excellent revolving harrow is obtained.

In testimony of the appreciation of this machine and for the encouragement of other inventors, we can state that the inventor is selling territory rapidly in Illinois at the rate of $200 a county. This machine can also be made a good cultivator, and we think that it is the very machine that every farmer has for a long time been wanting, and we have no doubt that many of our agricultural readers will discover that it exactly suits their requirements.

Any further information can be had by addressing the inventor as above.

New Work on Mining.

We have lately had the pleasure of examining a work in manuscript, by Mr. Job Atkins, a practical mining engineer, in Chesterfield, Va., which, from the experience of its author, should render it very acceptable to persons owning mineral lands, and those who wish to become acquainted with mining engineering. It contains much useful information regarding the Virginia coal fields, and the method of "prospecting" and boring for coal and working mines.

Browning Gun-Barrels.

MESSRS. EDITORS:—You recently published a recipe for browning gun-barrels. I experimented with it and found it too strong; but on reducing it by adding a pint of rain or distilled water, it made a splendid browning mixture. I am a gunsmith by trade, and consider that this recipe alone is worth the price of the SCIENTIFIC AMERICAN for a whole year.

P. S.

Delavan, Wis., June 8, 1859.

LIQUID GOLD.—Some of our cotemporaries state that M. Thiery, a French chemist, has discovered a method of keeping gold in a liquid state without the aid of heat. It is often asserted that the ancients knew a method of effecting this object, and that this is one of the lost arts. We are of opinion that the ancients *never were* acquainted with this art, and that M. Thiery *is not.*

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Scientific American.

NEW YORK, JUNE 18, 1859.

Special Notice.

All subscribers to the SCIENTIFIC AMERICAN who have paid the full subscription price (two dollars) for the complete volume which has heretofore terminated in September, are informed that by remitting $1 60 more, their subscriptions will be continued for one year on the New Series commencing July 1st.

CLUBS of subscribers who have paid up to September, and wish to renew their subscriptions or form new clubs at that time, can do so at the club rates, deducting 30 cents each from all the present subscribers and complying to our advertised rates on new ones; for instance a club of 10 subscribers who have paid $15 for one year's subscription up to September, may have their subscriptions continued till the end of Vol. II., New Series, or one year from July 1, 1859, by remitting $12.

Ancient Tables of Wood.

A very general opinion prevails that the rich folk of ancient days were rather a poor set of fellows in comparison with our modern nabobs; and that they could not afford to buy decent chairs and tables for their parlors. We are also liable to lift up our hands in astonishment at the domestic extravagance sometimes displayed at the present day, and to consider that this is the age superlative of foolish expenditures for fancy bits of household garnishings. We rather think that with all the public self-complacency for modern grandeur, the old Romans would "take the shine" out of us, in the table line at any rate. Pliny states that Cicero once paid about $45,000 for a fancy table of citrus wood, and that one which had belonged to King Juba, on being exposed at auction, was knocked down for the nice little sum of $54,000. As Cicero was a Roman lawyer, we would like to know which of his disciples in New York could afford to present such a comfortable table to his amiable spouse at this day.

Among the Greeks and Romans there existed, for a period of 150 years, a ruling passion to possess beautiful tables of citrus wood, the finer specimens of which were compared to gold for their value. The veins of this wood run in spirals and wavy lines, and these were rich and brilliant in their colors, being a mixture of wine-and-honey colored veins. Its polish, without any varnish, was brilliant as glass. It had a fragrant odor, and for this reason it was sometimes employed in religious sacrifices and for statues of the heathen gods.

A knowledge of the tree from which this famous wood was obtained has been lost for centuries; but a correspondent of the London *Builder* states that it is the *callitris quadrivalvis* or wild-spreading cypress of Mount Atlas, and that the most fancy pieces employed in the ancient tables were obtained from excrescences or knots, something like the elm knots of which wooden bowls are frequently made in various parts of our country. The Roman citrus tables were generally of a round shape, supported on ivory legs, carved out to represent those of animals.

The principal ornamental woods now used in the manufacture of fine furniture are mahogany, rosewood and black walnut—rosewood being the most highly esteemed, not because it is finer in the grain than mahogany, but because it has the greatest contrast of colors and is not so monotonous to the eye. In California there are some beautiful colored woods which have not yet been introduced into our cabinet-work; but they no doubt will yet find a place in the parlors of our people, if it were upon no other consideration than to afford pleasure from their variety. A few years ago curly and bird's-eye maple were employed extensively for making chairs and other articles of furniture, but the demand for these woods has almost ceased. Splendid logs of these kinds of maple, which a few years since would have brought a high price, are now burned for fuel in various portions of our country, there being no demand for them for any other purpose. The peculiar appearance of these woods is now imitated by staining soft timber, which is so much easier worked that cabinet-makers prefer to operate with the imitated rather than the genuine article. Oak has recently come into pretty good repute in chair-making, and it is certainly a very beautiful wood for this purpose, but not equal to American bird's-eye maple.

The fashion for tables, at present, is very different from that which reigned in Rome in the days of Cicero; fine marble, not wood, being the prevailing material employed for the tops. Our taste may not be so refined as that of some others in this respect, but we certainly think marble is inferior to fine wood in point of beauty for this purpose; it is totally devoid of that warmth of color which is so pleasing to the eye in rosewood and the finer qualities of mahogany.

A New Motive Agent.

In the year 1836, the French chemist, Thilorier, succeeded in producing solid carbonic acid, which up to that period had only been obtained in the state of a gas and a liquid. Soon after this, Faraday repeated his experiments with success in London, and afterwards Natterer, of Vienna, simplified the method of making it. This acid in the liquid state, owing to its great sensitiveness to heat, was proposed by Brunel as a motive agent in 1832, and now, Dr. A. H. Eusman, Professor at Stettin, Prussia, proposes (in *Dingler's Polytechnic Journal*, from which the following is translated for the SCIENTIFIC AMERICAN,) to employ it in the solid state for the same purpose.

He says: "I consider solid carbonic acid as a new motive agent, which may be able to supersede steam in locomotives, and by which the navigation of the atmosphere with balloons may be rendered practicable. Faraday states that carbonic acid is a singular substance on account of the high pressure which emanates from it in passing from the solid state; there is nothing equal to it in this respect, and it reverses the natural order entirely of other substances. It has the form of snow, and also of crystals which are so transparent that it is difficult to distinguish them from the pure glass bottle in which they may be kept. If solid carbonic acid is not enclosed in vessels of great strength, and sealed up perfectly tight, it passes into gas, not suddenly, like gunpowder, when a match is applied to it, but by degrees in the same manner that ice forms into water. Its vapor has an expansive force or pressure which increases with its temperature in the ratio of 23 atmospheres at zero, 29 at 16°, and 38 at 32°. On this high expansive force, together with the slow evaporation of solid carbonic acid my ideas are founded for using it as a motive agent.

"The only difficulty in the application is the production of the solid acid in sufficient quantities. It has been made by Natterer from chalk treated with sulphuric acid in quantities of several pounds at once, and an apparatus such as he used, and which is able to withstand a pressure of 2,000 atmospheres is now sold in Vienna for 100 florins ($50). If a demand were made for this solid acid, it may be produced in any quantity. If this can be done, the next thing is to make experiments first to move small loads on railways. My idea of rendering this power useful is on the principle of reaction—that is, in the same manner which causes the motion of rockets. Let a vessel of sufficient strength, filled with solid carbonic acid, and provided with a stop-cock or valve, be fastened on a light carriage having one person to direct its motion, and let this vessel be considered as similar to a rocket with its mouth behind. When its valve is opened, the solid carbonic acid will assume the gaseous condition, and its great pressure in escaping will move the carriage in the opposite direction, with a velocity and force equal to the pressure and the area of the rocket vessel. With the employment of a sufficient force of this kind, several railroad carriages attached together in front of the driving one may be propelled along a railroad. The idea appears to me be worth trying, and, if successful, large and costly locomotives may be done away with, as this power will act directly; and heavy engines, to provide sufficient adhesion on the rails as now required, will not be necessary, and the power now consumed in overcoming the resistance of the machinery will also be avoided. By attaching such rockets to the gondola of a balloon, it may be steered in any direction at pleasure. I, however, do not expect that much benefit will ever be derived from aerial navigation, as balloons will always be subjected to the same influences as sailing vessels on the ocean. The principal advantage of this motive agent would be its application to railroads."

Death of Consul Robertson.

Col. W. H. Robertson, for many years U. S. Consul at Havana, and favorably known almost everywhere, died in that city on May 28, at the advanced age of 82 years. We were permitted to enjoy the personal friendship of Col. Robertson for many years, and the last time we saw him was in August, 1858, on his return from a visit to Saratoga, where he had gone with his family in quest of health. He returned to Havana early in the Fall of last year, and from that time until his death he gradually wasted away. He was a somewhat remarkable man in many respects; he was always an efficient public agent; had troops of friends, and never lost them even when under the cloud of adversity. For political life, however, he had no special taste; he preferred the study of practical science, employing much of his time in various fields of investigation, and had stored his mind with a large share of information bearing upon all the leading industrial arts. He was also the inventor of several useful improvements, some of which he secured by Letters Patent. He had a great anxiety to perfect, before his death, an important improvement in the clarifying of sugar—a subject on which he had expended much time and thought; and in the furtherance of this object he consulted many of the first scientific men of the time. While in Europe, a few years ago, his attention was attracted to the brilliant experiments of Andrew Crosse, the celebrated electrician. Col. Robertson's idea was that, by the aid of electricity properly applied, he could accomplish all his objects in reference to the clarifying of sugar. Crosse had succeeded, by the action of a voltaic battery upon a tumblerful of water taken from a cavern, in producing, in a few days, crystals of carbonate of lime; he also made some curious discoveries in reference to the effect of positive and negative electricity upon vegetation, and discovered a process for purifying salt water by means of electricity. These facts coming to the knowledge of Col. Robertson, he determined to seek an interview with Mr. Crosse; a correspondence was opened between them, which resulted in a visit of the former to Fyne Court, the estate of Mr. Crosse in Somersetshire, England; and although no practical results insued from this interview, Col. Robertson nevertheless continued his researches, and doubtless died fully impressed with the belief that, by the aid of that subtile agent, this desirable object would ultimately be attained. For sometime previous to his death, he was engaged with a company in Havana in the manufacture of bricks from the sands upon the shore of the island of Cuba; these sands are composed in some measure of disintegrated particles of shells. He was deeply interested in the discovery of a method whereby artificial stone suitable for building purposes could be economically produced. The discoveries of Hardinge, of this city, and Ransome, of Ipswich, England, in the reduction of silicates into liquid form, as published in the SCIENTIFIC AMERICAN, interested him. He made efforts through us to procure from Mr. Ransome samples of his product for the purpose of experiment in the island of Cuba, but without success. His interest, however, in the progress of science and invention continued up to the day of his death, as it was only a short time previous to this sad occurrence that we were professionally employed to prepare some patent papers in reference to a useful improvement. His body was embalmed by his physician under arrangements made some time previous to his death; and it is asserted that in all his preparations for the close of his earthly career he was probably more composed than he would have been in preparing for a pleasure tour to Europe, which had been in his contemplation. We shall miss the manly form and pleasant society of our friend, and all that we can add, in conclusion, is that he was a good citizen and an honest man.

Iron Ships—Water-Tight Compartments.

The benefits arising from constructing vessels with water-tight compartments were fully displayed in the case of the iron screw-steamship, *Edinburgh*, which plies between this city and Glasgow. On the 6th of June, when 186 miles east of St. Johns, Newfoundland, she struck an iceberg while in a dense fog, and her forward plates were stove in by the collision. Being divided into water-tight compartments, two of these at once filled up, but the others floated the vessel for thirty hours afterwards, during which period she run back to St. Johns. It is related by the Newfoundland papers that the captain (Cummings), officers, crew and passengers, conducted themselves with great self-possession and courage, and that excellent discipline was maintained throughout. Had this vessel not been built in compartments she would have sunk to the bottom in half an hour after she struck.

Supplement to the "Scientific American."

It will be recollected by our readers that on the 16th of April, we issued a double number of the SCIENTIFIC AMERICAN containing a history of its rise and progress; also, a rare and valuable collection of notes and information upon patents and patent law. It is the best popular treatise on the subject ever published, and should be in the hands of all who are interested either in procuring, managing or using patented inventions. An extra edition was published at that time, but it was soon exhausted, and in order to meet the continued demand, we have just issued another edition of twelve thousand copies. It is published in quarto form, sixteen pages, similar to the forthcoming new volume, and copies are mailed upon receipt of two three-cent stamps.

Libraries for Railroad Engineers.

At Altoona, Pa., where the machine-shops of the Pennsylvania Central Railroad are located, there is a large library for the journeymen and apprentices to which they resort for mental instruction and entertainment. It is kept in order by volunteers from the shops, who alternately discharge the duties of librarians, &c., after working hours. There are libraries connected with various factories and machine shops in our cities, such as the factories at Lowell, Mass., and Messrs. Hoe's machine-shops in this city, and these institutions we most heartily commend as evidences of liberality and enlightened understanding on the part of their proprietors. We also recommend the example of the Altoona machine shops to all the other railroad establishments in our country.

We have to thank Messrs. Grover & Baker, the celebrated sewing-machine manufacturers of this city, for an excellent map of New York State. It is engraved by J. H. Colton & Co., and does every credit to to those popular map publishers.

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Useful Information About Hair Dyes.

As a rule, all hair-dyes should be avoided; in almost every case the process is prejudicial to the unities which tend to form that harmonious whole, which we call personal beauty. The chief characteristics of beauty, independent of form, are the complexion, the eyes, and the hair; and therefore the first question to be asked, before attempting to change the color of so important an auxiliary to beauty as the hair, should naturally be, "Will the change suit the complexion and the eyes?" The Teutonic beauty of Anglo-Saxons and Anglo-Normans, has come down to the people of Great Britain along with the practical common sense of the one, and the lofty bearing of the other. The mass of female loveliness which graces the land is therefore essentially "fair"—white and clear—in contradistinction to brown and dark. A clear rosy complexion, blue eyes, and hair more or less auburn, are all the most prevalent. Now, to change either the color of the complexion or of the hair is to destroy the unities of such a style of beauty, because the eye cannot be changed *en suite*; and it produces the same incongruous effect as an ill-dressed woman often presents by a display of ill-assorted colors in her attire. "Fair" persons are seldom, if ever, improved in appearance by the process of hair-dyeing. Such persons who do not exhibit these marked features of Teutonic extraction, in whose veins commingles the blood of a more southern race—whose dark or brown complexion, gazelle-like eyes, and raven hair tend to form that style of beauty we designate "brunette"—should age trip up youth or their locks become prematurely grey or silvery white, may call in the aid of art to restore the hair to its original tint, without infringing the principles of the harmony of color. If the hair be too glowing, too bright an auburn, to assimilate with the eyes, or with the blush of the cheek, then its redness can be artificially lowered by the application of what the French perfumers name *Eau Crayon*, pencil-water, but which is, called by its right name, simply walnut-water. Nearly everybody is familiar with the property of the juice of the walnut-husk to stain the skin of a dark brown. By some chemical magic this water can be prepared to darken the hair, and yet not to stain skin. This liquid, sold by the manufacturing perfumers, is the best for darkening the hair, without, strictly speaking, dyeing it. Walnut-water does not darken the hair very rapidly; it therefore requires to be applied repeatedly during several weeks, and the change, however slow, is thus the more natural and unobserved. There are several good recipes to dye grey hair. The quickest dyes have the fault of staining the skin, should any portion touch the skin or scalp by accident, which it is almost impossible to avoid. The slower-acting dyes give more trouble, but are less likely to incur the unpleasant result of staining the skin. A quick dye is made by dissolving a quarter of an ounce of nitrate of silver in little less than a quarter of a pint of distilled rose or elder water—even common water will do, provided it has been boiled for a few minutes, and then allowed to cool. If the hair be quite clean and freed from grease by first washing it with borax, dissolved in warm water, and then allowing it to get dry, the silver solution has only to be combed carefully through the hair in order to produce the effect desired. If the hair be allowed to remain dishevelled and exposed to the action of sunshine, light, and air, the dye will act with increased rapidity; and if it be not dark enough, the dye can be again applied with increased effect. The application of a mordant, such as sulphate of ammonia, will also make the dye "strike" with greater rapidity; but it is a most disagreeable compound, and not to be recommended. Washing the hair with sulphur soap will help all dyes to produce a better color, whether they be walnut-water or silver solution. The best dye is thus prepared:—Calcined magnesia, two ounces; quicklime slaked, two ounces; powdered litharge, eight ounces. Having slaked the lime with as little water as possible to cause it to disintegrate, mix the whole of the ingredients well together and they will be ready for use, in the following manner:—Mix the powder with enough water to form a thick creamy fluid; with the aid of a brush, completely cover the hair to be dyed with this mixture. To dye it light brown, allow it to remain upon the hair four hours; dark brown, eight hours; black, twelve hours. As the dye does not act unless it is moist, it is necessary to keep it so by wearing an oiled silk, india-rubber, or other waterproof cap. When the dye has taken effect, the hair has to be washed with an abundance of warm water.

S. Piesse.

The Editor in his Sanctum

Presents the following *melange* to his indulgent readers:—

Steam Whalers.—There are now fourteen steamships employed by Scotch companies in the whale and seal fisheries of the Arctic regions. We believe that none of our American companies have yet employed steam vessels in fishing operations. So successful have been these Scotch fishing steamers that their number is increasing every year.

Science and Skill.—Dr. Lyon Playfair says:—"There never was a time when it was so necessary as now that skill and science should be united for the promotion of the industrial arts. Science, in its progress, is improving and simplifying processes of manufacture, while it is opening at the same time communication between the nations of the earth. Mere advantitious local advantages, apart from skill and science in their adaptation, become of much less moment than formerly."

An Inventor's Gift.—Cyrus H. McCormick, the well-known inventor, has donated $100,000 for the purpose of endowing a theological seminary at Chicago, with four professors. This is certainly a very commendable act of Christian benevolence, and we are pleased to know that Mr. McCormick is abundantly able to perform it.

Galileo and the Inquisition.—A subscriber of the Scientific American complains to the editor of the New York *Freeman's Journal*, as we learn from that paper, that, in an article entitled "Science honoring Princes," we proposed, as a subject for a cartoon, "Galileo and the Inquisition," evidently thinking therefrom that we are possessed with the vulgar error that he was persecuted for his science. Has our aggrieved subscriber paid so little attention to our columns as not to discover our want of bigotry? All that we meant was that, in 1615, Galileo was persecuted by the "powers that were," for stating what he thought to be the truth as seen from a natural point of view, and that such was the progress of the ages that, in 1859, Faraday had for his audience one of that self-same class—the rulers. We of course referred to the Inquisition as a State engine, not as a religious institution.

Cane Mill.—The Assistant-Postmaster, writing to us from Mormon, Salt Lake County, Utah, says that there is great enquiry in that section, at this time, for the best kind of mill for extracting the juice of the sugar cane, which bids fair to be extensively cultivated in that region, it being a county well adapted to it. He requests us to send a description of the best mill for this purpose. Here is an opening market for some enterprizing manufacturer. Communications should be made directly as above.

Flying.—A correspondent writes that, from certain experiments he has made, he thinks that if some one would advance him $800 or $900, he could get a pair of wings made whereby he could accomplish astonishing feats in flying *a la* buzzard and other birds We once heard of an enthusiastic aeronaut who imagined himself capable, with a set of wings, of imitating the feathered tribes. His experiments were duly made, and, in answer to the inquiry of his friends how he got along, he replied that he could fly well enough, but that it was confounded hard to alight.

California Overland Mail.—To carry through a single mail from St. Louis to San Francisco requires the use of 166 stations, 164 changes, 91 drivers, and 716 horses. The total number of horses required on the route is about 1,800.

The General Admiral.—This splendid frigate-of-war (noticed by us in No. 38 of the present volume of the Scientific American) sails in a few days for Cherbourg, France, *en route* for Russia. She was coppered with the article known as the "cold rolled" copper up to a draft of 23 feet. Of this material there were used in that process 5,150 sheets, weighing about 50,000 pounds. Each sheet required 140 nails, of which there were used 721,000, weighing 5,000 pounds, in riveting the copper on the vessel. The material used cost $14,000.

Something of a Change.—One of our Texan subscribers recently appended the following postscript to his letter:—"I duly received No. 32 of your journal, containing, among much other interesting and valuable information, a description of your new offices. What a change in that old spot since I used to be a clerk in a store on the corner of Nassau and Beekman streets in 1834. Then, I looked with reverence on the 'Old Brick Church' of Dr. Spring; now, thousands gaze with admiration upon a *scientific palace*, the like of which cannot be seen in any other part of the world. Then, I used to wade through the columns of the *Sun*, Brooks' *Sunday Times*, and Lock's *New Era*, for a few paragraphs devoted to science, and only about half a dozen notices of patent claims and new inventions appeared each week. Now, I am entertained in a distant land (then scarcely known) with a fine quarto paper—the Scientific American—devoted entirely to such subjects, and issued from one of the noblest buildings erected on the same spot where stood that 'Old Brick Church.'

Physic and Science.—The *Physio-Medical Recorder*, published at Cincinnati, in speaking of the Scientific American, says: "It is one of the most reliable and instructive mechanical weeklies of this country, and has acquired an enviable reputation for solidity, promptness and honesty. Its columns are always full of thought and suggestion. To artisans of all classes it cannot fail to be a favorite; and to lads of a mechanical turn it will prove a valuable companion, keeping them acquainted with all the improvements of the day, and encouraging them to inventions by pointing out the many fields still open for the exercise of mechanical genius.

A Lazy Editor.—The editor of the *Ohio Cultivator* must be a very lazy fellow, and still he edits a very interesting journal. Every month the *Cultivator* comes to us, and on the first page commences "Talk from the Editor's Arm-chair." Now, how an editor can say such good things and sit in an arm-chair is what we cannot apprehend, and then again, how an editor can afford to have an arm-chair is still further beyond our comprehension; and still the most wonderful thing of all is, how an editor, who takes life so easy as to be continually occupying an arm-chair, can obtain so much practical information for the farmer as is contained in the *Ohio Cultivator*. How is it done?

Choice Compliments.—The *United States Journal* says: "It—the Scientific American—is beyond all question the most beautiful and popular scientific journal in the world." The Leon (Iowa) *Pioneer* says: "There are many who take the New York *Ledger*, but a single volume of the Scientific American is worth more than all the *Ledgers* that ever were or ever will be published." The editor of the *Daily News*, Kingston, Canada, in a lengthy editorial notice, says: "The publishers of this truly valuable and elegantly got-up weekly journal propose to change its form, increase the quantity of reading matter, and otherwise improve—if that be possible—its general character. It has long been distinguished as the best printed and most ably conducted scientific medium in America, and its illustrations are engraved in the very best style of the art and with the truthfulness of the daguerreotype." The *Prairie Farmer*, Chicago, says, in reference to our project of enlargement: "We regardit—the Scientific American—as the most valuable and indispensable journal of its class published anywhere. It is worthy of the success that attends it." We could multiply such notices *ad libitum*.

A New Alloy.—At a late meeting of the Academy of Sciences, in Paris, a pistol barrel made of an alloy composed of tin, iron, and aluminum, was exhibited, and was found to be very strong and its quality is such that it will never rust. This alloy is six times stronger than bronze and can be forged at a red heat and hammered like steel.

The Mississippi Bar.—The city of New Orleans, at no very distant day, will be shut out from the commerce of the sea unless efficient measures are soon taken to remove the bar from the mouth of the Mississippi river. During the past winter and spring a large fleet of ships were detained for two months at the bar before they were enabled to pass over.

*** Persons who write to us expecting replies through this column, and those who may desire to make contributions to it of brief interesting facts, must always observe the strict rule, viz., to furnish their names, otherwise we cannot place confidence in their communications.

M. M., of S. C.—Ericsson's caloric engines are now operating in this city to some extent, where a small amount of power is required, and they give satisfaction. It is difficult just now to estimate the question of economy; time is required to determine how long the parts will last when exposed to the action of dry heat. The caloric-engine requires less coal than the steam-engine, and the cost of a three-horse power would be, we suppose, $700 or $800.

E. J., of Boston.—Send us a sketch and description of your alleged improvement, for examination, without delay. We think you have procrastinated your application too long already. The party to whom you refer obtained his patent this week, as you will see by the list of claims. You must now necessarily enter into litigation upon the question of priority of invention, if you wish to maintain your rights. You could have avoided this by more promptitude.

T. H. L., of Ga.—We are very much obliged to you for the fair list of subscribers you have sent us. We do not know where you can procure a reliable machine for cleaning seeds from broom-corn straw. If we hear of any one who can furnish such a machine you will be advised.

G. B. D., of N. Y.—We have no knowledge of the extraordinary "motive power" to which you refer; but we may remark that such announcements are not uncommon. Honest inventors, not well informed in the laws of mechanics, often deceive themselves into the belief that by some adjustment or combination of mechanical elements they can supersede "steam, water, wind, and other powers." The idea in the case you mention of "the adaptation of weight so as to overcome friction, and evolve power proportionate to the amount of weight employed," shows most conclusively that the supposed invention is a mere chimera.

G. B., of Mass.—Every specimen of glass intended for optical purposes must be examined and selected for its purity, not because it is made in a certain manner. The polishing of lens is a very delicate and difficult operation, and you should try and get some practical instruction from a practicing optician. Brewster's Optics can be obtained in this city.

A. A. S., of N. Y.—As you require the benefit of all the light which you now have, the only method which we can recommend to screen your window is to place a curtain of bleached muslin in a frame on the outside of the window, flush with the wall. This arrangement will not only prevent persons witnessing you at your work, but actually increase the light in your room, as the innumerable points on the fabric will refract the solar rays into the apartment. Rooms partly underground, which enjoy but little light, can be made much more cheerful by such a simple arrangement—it will transmit a great deal more light into them. Use thin strips of zinc in the cyanide of gold for the purpose of reducing the precious metal.

W. E. H., of Ala.—Coarse cotton gauze is much superior to perforated paper to protect the face of sleeping persons from flies. You can purchase this material in almost every dry goods store. Fans, operated by clock-work, can be placed on the posts of beds to keep the atmosphere of bedrooms cool during sultry nights. Such fans are not uncommon in the East Indies.

M. L. H., of N. H.—We cannot undertake your case unless you place the whole business in our hands yourself, as we cannot consent to interfere with the business of other agents. If inventors will intrust their interests to agents merely because they are *cheap*, they must expect to suffer. If you employ a cheap agent you must look for poor services.

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S. W. H., of N. Y.—In South America, where fuel is scarce, silver is separated from its ores by grinding them to very fine powder, then exposing them for a considerable time to the successive action of common salt, sulphate of copper and mercury. These substances, mixed with the silver ore, are spread on a paved floor and trodden by horses, to effect an intimate mixture or amalgam, which is separated from the exhausted ore by washing in water. Another method of extracting silver from its ore, is by fusing it with three times its weight of lead, then *cupelling* it in a crucible with saltpeter. This process oxydizes the lead, the silver forming in a button at the bottom of the crucible.

B. C., of Md.—You are a common sense man, and we ask you, does it stand to reason that a patent agent can do a regular business and base his fee upon the issue of the patent, and thus take all the contingencies that are likely to arise in each case? The fact is, such agents are usually without clients, reputation, skill or integrity, and if your case should happen to get into the Patent Office after you had paid the official fee, and be rejected, the $20 would be withdrawn without consultation with you, and your case thus placed in an almost hopeless condition. Cases similar to this are frequently coming under our notice. We have one now before us, where an obscure Washington agent (*fleecer*) got the $20 and gave his victim no satisfaction, not even to reply to his client's letter.

BOTTLE FOR THE PREVENTION OF POISONING.—On page 243, present vol. SCIENTIFIC AMERICAN, we described a method of constructing bottles for enabling small quantities of fluid to be dropped from the neck by narrowing the aperture underneath the stopple, and we now give an engraving of it, which will better show its construction.

D. R. STEVENSON, of Alleghany City, Pa., desires us to state that he has a set of bound volumes of the SCIENTIFIC AMERICAN, from Vol. I to X, which he would like to sell at $5 per volume. Persons often write us for the work complete; and no doubt, by obtaining the first ten volumes of Mr. Stevenson for $50, they will be able to procure the last three at a less price per volume.

W. B., of N. Y.—Little & Brown, of Boston, are the publishers of Francis' work on the Lowell experiments with turbine water-wheels. There is no other work to which we can refer you for practical information on this subject.

P. C. B., of N. Y.—The black coating on the outside of lamps is given either with black asphaltum or black copal varnish; and the yellow with lacquer, which is lac varnish colored with turmeric. All these varnishes are made by manufacturers, and sold at retail by dealers in painters' materials.

N. B., of C. W.—"Enameled furniture" is so named from receiving several coats of paint and varnish, and being polished down so as to give it a very smooth surface. If you use light copal varnish it will not crack so readily as lac-spirit varnish.

J. C. F., of N. Y.—We cannot send you the numbers wanted of Vol. VI. Peter Yates' pulley-engine has never been tried, so far as we know, since his experiments were made some years ago in this city. We were informed that it was continually getting out of order, and did not give satisfaction.

W. H., of Ohio.—Steel springs, after they are polished, are placed in an oven containing sand highly heated, and in this they are kept until they acquire the proper color—blue, purple or straw—which indicates the temper desired, when they are withdrawn.

H., of Boston.—The description of oreide of gold was published on page 308, Vol. XI., SCIENTIFIC AMERICAN.

A. P. R., of Ohio.—Friction matches are made by dipping their ends first in molten sulphur, then, when cold, into a composition of 9 parts phosphorus, 14 of niter, 16 peroxyd of manganese, and a little sulphuret of antimony, mixed intimately in a solution of gum arabic. You will find some further information on this subject on page 212, Vol. XI, SCIENTIFIC AMERICAN.

W. B. G., of N. Y.—Your subscription is paid until March, 1860. Your proposed method of increasing the intensity of a Smee's battery, if found useful, is patentable, because it is new.

C. F. G. M., of Ind.—If there is sufficient force in the St. Joe River, near your house, you may be able to put up a ram that will throw sufficient water 15 feet above its level to irrigate your grounds. There is no difficulty about making the ram operate for the purpose, if you can conveniently obtain a fall, either from the river or the brook which you have described.

O. S., of Conn.—W. B. Leonard, Esq., Corresponding Secretary of the American Institute, can furnish you with a dynamometer for testing the power of a water-wheel. It is only by such a test or a *brake* that you can obtain the power of an engine or wheel.

M. C. M., of Ind.—We have no data before us in reference to the highest speed attained by locomotives in the United States.

G. P. R., of N. Y.—Your contribution, "The Heroes of Industry," will appear in the first number of the New Volume. Thank you.

G. W., of Mo.—The sponge is but the dwelling-house of one of the lower forms of life, and has no life in itself.

W. M. H., of Md.—There are so many modifying circumstances in all boiling and heating operations that it is difficult to fix any arbitrary rules in regard to proportions. You will find much useful information on this subject in "Peclet's Traite de la Choleur." Sold by H. Balliere, of this city.

H. H., of Pa.—When the article is of such a nature that the date of the patent cannot be printed or stamped thereon, it should be affixed to the case or package containing it. This will fully meet the requirements of the law. You need not put the name of the patentee on the package.

Money received at the Scientific American Office on account of Patent Office business, for the week ending Saturday, June 11, 1859:—

L. M., of Mich., $30; H. W. S., of Wis., $25; J. K., of Mass., $55; F. H., of Ill., $30; J. R., of Pa., $30; A. B., of N. Y., $250; H. D., of Pa., $25; G. C., of Miss., $55; J. W. N., of Ct., $35; G. H. & S. F., of N. Y., $30; W. D. S., of Pa., $30; J. B. Q., of N. J., $30; G. H. K., of N. Y., $55; G. C., of N. Y., $30; F. W., of Pa., $25; W. B., of Mich., $30; W. S. R., of S. C., $25; P. W. G. & Co., of Ill., $20; A. W., of Vt., $30; M. R., of N. Y., $55: M. & B., of N. Y., $20; J. C., of Miss., $25; M. & S., of Texas, $55; J. B., of Ill., $30; G. A., of O., $20; H. H., of Mass., $110; T. D. R., of N. Y., $20; W. H., of Ga., $25; J. H. G., of Pa., $30; H, H., of N. Y., $10; T. C., of Pa., $25. J. C. P., of La., $25; J. W. McL., of Ind., $30; H. W. H., of Ct., $30; J. P. of Iowa, $20; A. Le B., of Paris, $330; J. G. E., of Pa., $32; J. W., of O., $30, I. W. H., of N. C., $30; G. W. P., of Vt., $15; C. M., of N. Y., $70; A. G., of Ala., $5; W. P., of Mass., $30; A. B., of Ill., $25; J. H. R., of N, Y., $155; L. S. U., of Tenn., $30; A, L. S., of Ind., $30; C. P. P., of Ala., $15; E. W. D., of Mass., $12; F. & S., of N. Y., $160; L. R. B., of N. Y., $30; R. S. P., of Ct., $30; J. F. S., of N. Y., $55: E. C., of Mass., $100: S. B. T., of Ct., $30; T. W., of R. I., $20; W. T. C., of N. J., $50. B. F., of Ind., $30; I. F. B., of Ga., $10; G. & M., of Ill., $35; J. A. R., of N. Y., $50.

Specifications drawings and models belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, June 11, 1859:—

E. B. W., of N. H.; J. P., of N. Y.; A. G., of Ala.; W. H., of Ga.; L. B. T., of N. Y.; J. T. P., of N. Y.; P. W. G. & Co., of Ill.; J. A. R., of N. Y. (2 cases); G. H. K., of N. Y.; J., G., of Pa.; H. W. S., of Wis.; C. M., of N. Y. (2 cases); H. D., of Pa.; J. W. N., of Conn.; W. G., of N. Y.; H. & K., of Mass.; A. B., of Ala.; L. M., of Mich.; J. H. G., of Pa.; E. W. D., of Mass.; C. P. P., of Ala.; H. A., of N. Y.; J. G. E., of Pa; M. & B., of N. Y.; A. B., of Ala.; J. C., of Miss.; T. C., of Pa.; J. C. P., of La.; W. S. R., of S. C; A. D. B., of Ga.

IMPORTANT TO INVENTORS.

AMERICAN AND FOREIGN PATENT SOLICITORS.—Messrs. MUNN & CO., Proprietors of the SCIENTIFIC AMERICAN, continue to procure patents for inventors in the United States and all foreign countries on the most liberal terms. Our experience is of thirteen years' standing, and our facilities are unequaled by any other agency in the world. The long experience we have had in preparing specifications and drawings has rendered us perfectly conversant with the mode of doing business at the United States Patent Office, and with most of the inventions which have been patented. Information concerning the patentability of inventions is freely given, without charge, on sending a model or drawing and description to this office.

Consultation may be had with the firm, between nine and four o'clock, daily, at their principal office. 37 Park Row, New York. We established, over a year ago, a Branch Office in the City of Washington, on the corner of F and Seventh streets, opposite the United States Patent Office. This office is under the general superintendence of one of the firm, and is in daily communication with the Principal Office in New York, and personal attention will be given at the Patent Office to all such cases as may require it. Inventors and others who may visit Washington, having business at the Patent Office, are cordially invited to call at our office.

We are very extensively engaged in the preparation and securing of patents in the various European countries. For the transaction of this business we have offices at Nos. 66 Chancery Lane, London; 29 Boulevard St Martin, Paris; and 26 Rue des Eperonniers, Brussels. We think we may safely say that three-fourths of all the European patents secured to American citizens are procured through our Agency.

Inventors will do well to bear in mind that the English law does not limit the issue of patents to inventors. Any one can take out a patent there.

Circulars of information concerning the proper course to be pursued in obtaining patents through our Agency, the requirements of the Patent Office, &c., may be had gratis upon application at the principal office or either of the branches.

The annexed letters from the last two Commissioners of Patents we commend to the perusal of all persons interested in obtaining patents:—

MESSRS. MUNN & CO.—I take pleasure in stating that while I held the office of Commissioner of Patents, MORE THAN ONE-FOURTH OF ALL THE BUSINESS OF THE OFFICE came through your hands. I have no doubt that the public confidence thus indicated has been fully deserved, as I have always observed, in all your intercourse with the Office, a marked degree of promptness, skill, and fidelity to the interests of your employers.

Yours, very truly, CHAS. MASON.

Immediately after the appointment of Mr. Holt to the office of Postmaster-General of the United States, he addressed to us the subjoined very gratifying testimonial:—

MESSRS. MUNN & Co.—It affords me much pleasure to bear testimony to the able and efficient manner in which you discharged your duties as Solicitors of Patents while I had the honor of holding the office of Commissioner. Your business was very large, and you sustained (and, I doubt not, justly deserved) the reputation of energy, marked ability, and uncompromising fidelity in performing your professional engagements.

Very respectfully, your obedient servant.

J. HOLT.

Communications and remittances should be addressed to MUNN & COMPANY,
No. 37 Park-row, New York.

INFORMATION WANTED of one ARCHIBALD CAMPBELL, acting as Agent for the sale of Emery's Patent Corn-Husker, patented July 7, 1857. When last heard from he was in New Orleans. Any person having purchased Rights, or knowing of his whereabouts, would confer a great favor by informing the subscriber. WM. EMERY,
41 1t* Jones' Creek, Randolph Co., Ill.

FOR SALE—THE ENTIRE PATENT RIGHT, or State Rights, for a superior Corn-Husking Machine. The above machine is operated by steam or horse-power, and is capable of husking fifty bushels ears corn per hour. It separates the but or stalk, and husks the ear with once handling the corn. A full sized machine can be seen in operation at the office of the patentee, No. 139 Thames-street, Newport, R. I. For further information address WM. H. SMITH,
41 2t* P. O. box 600, Newport, R. I.

TO MECHANICS.—WANTED—A PARTNER, with $200 to $500, to manufacture an extremely remunerative article, on which I have a monopoly.
41 1t* Apply to S. HIATT, Indianapolis, Ind.

A SUBSTITUTE FOR LEAD PIPE.—A New and Valuable Article, viz., a Semi-Elastic Pipe or Hose which can be used with pumps of any kind, for suction, forcing, or conducting water in any and every place where pipe is required. Its properties are:—It imparts no deleterious effects to the water, nor in any way effects it unpleasantly after a few days' use; it is sufficiently elastic to be bent into curves, and it is unaffected by heat or cold: it will not burst if water is frozen into it; it is not injured by exposure to the sun or atmosphere; it is composed of ingredients indestructible, except by fire. Samples of it have been tested by use for three years, without the least apparent decay, and it can be made to bear pressure as high as 400 lbs. to the square inch. Price not far from that of lead pipe. Circulars with prices and particulars furnished by the manufacturers. BOSTON BELTING COMPANY, corner of Summer and Chauncey streets, Boston, Mass. 31 13*

A GOOD AND SURE INVESTMENT.—The undersigned has invented a Rotary Brick Machine, in which is combined all that is really useful. A rare inducement is now offered to a suitable person with a cash capital of $2,000. All information given, with machinists' reference, by addressing JOHN KUTTS, patentee, No. 1220 Market-street, Philadelphia.

N. B.—Any person or persons infringing my Patent will be dealt with to the full extent of the law.
41 1t* JOHN KUTTS.

THE AMERICAN STAIR BUILDER.—By William P. Esterbrook and James H. Monckton. The best book on the subject. Everything connected with the science fully explained and illustrated. One large quarto volume. Price $6. Sent by mail, free of postage. Discount to Booksellers and Canvassers.
Address BAKER & GODWIN, Publishers,
40 2t* Tribune Buildings, Printing-House-sqr., N. Y.

TO INVENTORS AND PATENTEES.—A. B. ELY, Counsellor-at-Law, Traveler Building, Boston, Mass., will give his personal attention and experience of fifteen years to consultations and trials in all matters relating to the law of patents, interferences, infringements, &c. 38 13*

MARINE RAILWAYS.—THE SUBSCRIBER, Marine and Naval Architect, is prepared to build Marine Railways and Dry Docks, and to furnish Steam and Horse-power Engines, Chains, Castings, &c., on short notice and on reasonable terms. Satisfactory reference given. Address H. I. CRANDALL, New Bedford, Mass. 38 13*

THE SCIENTIFIC AMERICAN SIGNS, for Munn & Co., were painted by Ackerman & Miller. Refer to the Commercial Agency, McKillop & Wood, Park Buildings. All communications for signs, banners, or other ornamental work, attended to with dispatch. ACKERMAN & MILLER, 101 Nassau st., next to the New York Herald Office. 27 3m*

WROUGHT IRON PIPE FROM ⅛ OF AN inch to six inches bore; Galvanized Iron Pipe (a substitute for lead), Steam Whistles, Stop Valves and Cocks, and a great variety of fittings and fixtures for steam, gas, and water, sold at wholesale and retail. Store and Manufactory 76 John, and 29, 31 and 33 Platt st., New York. JAMES O. MORSE & CO.
31 13

GUILD & GARRISON'S STEAM PUMPS for all kinds of independent steam pumping, for sale at 55 and 57 First street, Williamsburgh, L. I., and 74 Beekman street, New York.
32 6m GUILD, GARRISON & CO.

A RARE CHANCE.—FOR SALE, AT A GREAT bargain, part or the whole of the Gravel Foundry and Machine Shop, Kenosha, Wis., together with the sole right for the States of Wisconsin and Illinois, to manufacture N. Leonard's Patent Seamless Thimble Skanes for Wagons, the most saleable skanes in the world. Part cash and part other property. For full particulars address J. COUNCILLOR, Esq., Rahway, N. J., or the proprietors. LANGE & DOYLE,
39 4* Kenosha, Wis.

TO WHEELWRIGHTS—I WILL PAY GOOD wages to an energetic man capable of doing the work and taking charge of a wagon and carriage factory. The machinery is driven by steam. Write to me at Claiborne, Ala. W. P. LESLIE. 40 2*

1000 AGENTS WANTED—FOR PARTICULARS send stamp. C. P. WHITTEN, Lowell, Mass. 39 13*

WHEELER & WILSON'S SEWING MACHINES—Office, No. 505 Broadway, New York. "They are without a rival."—Scientific American. Send for a circular. 39 4

5000 AGENTS WANTED—TO SELL FOUR new inventions. Agents have made over $25,000 on one—better than all other similar agencies. Send four stamps and get 80 pages particulars, gratis.
39 13* EPHRAIM BROWN, Lowell, Mass.

HARRISON'S 20 AND 30 INCH GRAIN Mills constantly on hand. Address New Haven Manufacturing Co., New Haven, Conn. 27 13

WHITMAN'S TURBINE WIND WHEEL.—Territorial or shop rights for sale. For particulars, inquire of the inventor, E. WHITMAN, at South Abington, Mass. 32 12*

RIVETS.—EVERY DESCRIPTION OF RIVETS: Boiler, Tank, Safe, Belt, Hose, Shoe, and Tinman's, black and tinned, constantly on hand. Socket bolts of any size furnished on short notice.
38 13* TABER & GRINNELL, New Bedford, Mass.

INGOT COPPER, SPELTER, BANCA TIN, Lead, Antimony, Babbitt Metal, Mount Hope Cut Nails, Ames' Shovels and Spades, for sale by JOHN W. QUINCY & CO., No. 98 William st., New York.
13 12e5w*

EIGHT-HORSE PORTABLE STEAM ENGINE, cylinder 7½ by 15, governor, balance-wheel, &c., attached to a flue boiler, all new. Price $600. S. C. HILLS, 12 Platt-st., New York. e3w

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INSTRUMENTS—CATALOGUE CONTAINING 250 illustrations of Mathematical, Optical and Philosophical Instruments, with attachment of a large sheet representing the Swiss instruments in their actual size and shape, will be delivered, on application, to all parts of the United States, by sending 12 cents in postage stamps. C. T. AMSLER,
No. 635 Chestnut st., Philadelphia.
☞ Catalogue of Stereoscopic Pictures is furnished gratis on application. 39 6eow*

GAGE COCKS, OIL CUPS, GAS COCKS, Steam Gages, Globe, Angle and Governor Valves, Flange Cocks, Pumps, &c., manufactured and for sale by HAYDEN, SANDERS & CO., No. 306 Pearl st., New York. 16 13eow*

BOILER FLUES FROM 1 ¼ INCH TO SEVEN inches outside diameter, cut to any length desired, promptly furnished by JAMES O. MORSE & CO., 76 John st., New York. 31 13

PATENT COMPOSITION BELTS—PATENT PACKING—The Company have on hand and are ready to supply all orders for their superior Composition Machine Belting. They are proof against cold, heat, oil, water, gases, or friction, and are superior to leather in durability, and much cheaper in cost. The composition gives to these belts uniform durability and great strength, causing them to hug the pulley so perfectly that they do more work than any other belts of the same inches. The severest tests and constant use in all sorts of places during the last 14 months has proved their superiority, and enables the Company to fully guarantee every belt purchased from them. Manufacturers and mechanics are invited to call, examine, and test these belts. The Patent Packing for planed joints is in every way superior to any other article ever used for that purpose. A liberal discount allowed to the trade. "New York and Northampton Belting and Hose Co.," E. A. STERN, Treasurer, 217 Fulton st., New York. 30 13

OIL! OIL! OIL!—FOR RAILROADS, STEAMERS, and for machinery and burning. Pease's Improved Machinery and Burning Oil will save fifty per cent, and will not gum. This oil possesses qualities vitally essential for lubricating and burning, and found in no other oil. It is offered to the public upon the most reliable, thorough and practical test. Our most skillful engineers and machinists pronounce it superior and cheaper than any other, and the only oil that is in all cases reliable and will not gum. The Scientific American, after several tests, pronounced it "superior to any other they have ever used for machinery." For sale only by the inventor and manufacturer, F. S. PEASE, 61 Main st., Buffalo, N. Y.
N. B.—Reliable orders filled for any part of the United States and Europe. 27 13

STEAM ENGINES, STEAM BOILERS, Steam Pumps, Saw and Grist Mills, Marble Mills, Rice Mills, Quartz Mills for gold quartz, Sugar Mills, Water Wheels, Shafting and Pulleys. The largest assortment of the above in the country, kept constantly on hand by WM. BURDON, 102 Front street, Brooklyn, N. Y. 27 tf

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MACHINE BELTING, STEAM PACKING, ENGINE HOSE.—The superiority of these articles, manufactured of vulcanized rubber, is established. Every belt will be warranted superior to leather, at one-third less price. The Steam Packing is made in every variety, and warranted to stand 300 degs. of heat. The hose never needs oiling, and is warranted to stand any required pressure; together with all varieties of rubber adapted to mechanical purposes. Directions, prices, &c., can be obtained by mail or otherwise, at our warehouse. NEW YORK BELTING AND PACKING COMPANY. JOHN H. CHEEVER, Treasurer. Nos. 37 and 38 Park Row, New York. 27 13

THE ENTIRE OR ANY PORTION OF THE right to Gardiner's Combined Chair and Lounge for sale. Illustrated in No. 37 of the present volume of the SCIENTIFIC AMERICAN. Apply to F. J. GARDNER, Washington, N. C. 37 8*

THE AURIN VILLAGE GAS-WORKS WERE erected last year by one city and several village companies to their entire satisfaction. Towns having only fifty consumers of gas can rely on the stock-paying dividends; and if one hundred, 10 per cent will be guaranteed. For references, apply to the Company, No. 41 State street, Albany, N. Y. 28 tf

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Also for sale by J. C. CARY, 240 Broadway, New York City. 37 tf

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38 6c GEO. I. CROSSETT, Assignee.

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Zur Beachtung für Erfinder.

Erfinder, welche nicht mit der englischen Sprache bekannt sind, können ihre Mittheilungen in der deutschen Sprache machen. Skizzen von Erfindungen mit kurzen, deutlich geschriebenen Beschreibungen beliebe man zu addressiren an
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Science and Art.

New Improvements in Cut-offs.

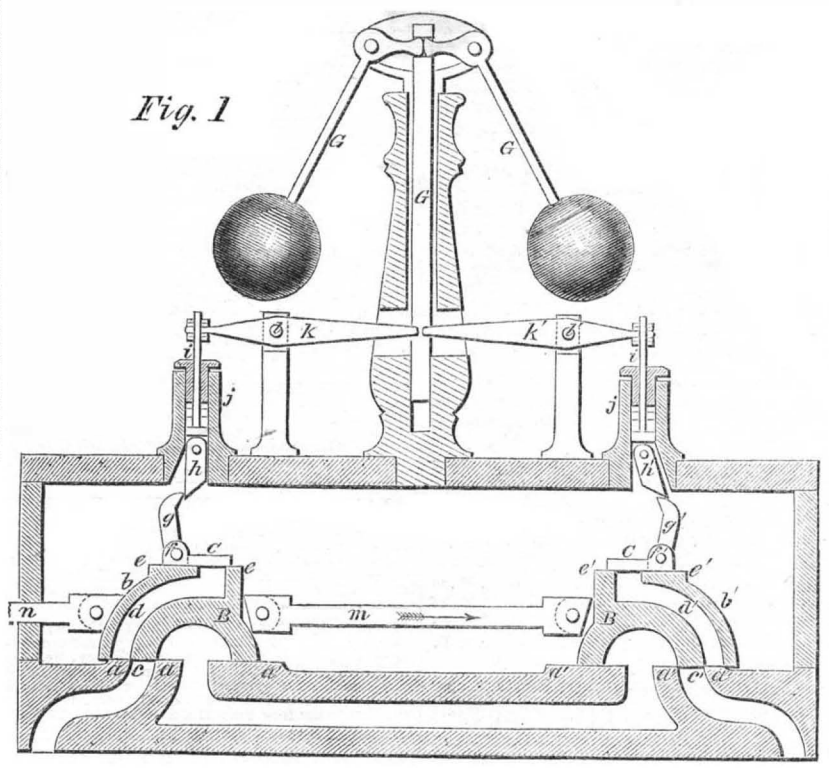
The inventions that form the subject of the accompanying illustrations are the subjects of two patents, and to insure perspicuity we will describe them separately.

Fig. 1 illustrates the first invention by a section of the steam chest of an horizontal engine, with governor attached. Small flap valves are added to the sliding induction valves to cut off the steam at any point regulated by a governor. *a* and *a'* are the valve seats containing steam ports, *c c'*, communicating with the cylinder and exhaust ports leading to the exhaust pipe, the arrangement of the ports being the same as is common when separate slide valves are used for induction and eduction to and from each end of the cylinder. B B' are the slide valves (one for each end of the cylinder), constructed with the additional shield, *b b'*, to the outer side, of each, so as to form passages, *d d'*, outsids the valve as usually constructed, these passages terminating in the faces of the valves which fit the seats, *a* and *a'*, and in faces, *e e'*, that serve as seats for the flap valves, C C', which are hinged to the valves at *f f'*, and that close the passages, *d d'*. The flap valves are each provided with a pointed arm or lifter, *g g'*, which points to the back of the chest, and in the chest over the two pairs of exhaust and steam ports are two stuffing boxes, *j*, through which pass rods, *i*, provided at their lower ends with jointed toes, *h h'*, beveled on the ends farthest from the ends of the steam chest, and fitted to their guides in the back of the steam chest in such a manner as to permit them to swing from a vertical position toward the nearest end of the steam chest, but not in the opposite direction. The rods, *i*, are connected with two levers, *k k'*, that work on fulcra, *l l'*, outside the chest, and whose opposite ends are connected with a governor, G, in such a manner that a diminution of the speed of the governor will cause the toes, *h h'*, to project further into the steam chest, and an increase of velocity produce the opposite effect. The two slide valves are connected by a rod, *m*, and motion is given from the eccentric by the rod, *n*. The movement of the slide valve causes their respective flap valves, C C', to be opened, as the former respectively move in a direction to open their respective ports by the arms, *g g'*, striking the toes, *h h'*, but as the slide valves move in the opposite direction, the toes, *h h'*, swing and permit the arms, *g g'*, to pass them. The valves, C C', close by gravitation with a tripping motion as the arms, *g g'*, escape the toes, *h h'*, in moving in the first direction, and thus cut off the steam suddenly, as the only passages for the steam from the chest to the cylinder are those in the valves covered by C C'. The escape of the arms, *g g'*, and cutting-off of the steam take place sooner or later in the stroke, according as the toes, *h h'*, are projected less or more into the chest. During the first part of the stroke of the valves in either direction, the steam which fills the chest passes under the shield, *b* or b', of the slide valve, B or B', whose steam port, *c* or *c'*, is to be opened by that stroke, and into the passage, *d* or *d'*, of said valve, so that the trap valve, C or C', belonging to the slide valve, is exposed to steam both above and below, and is consequently balanced, and this continues to be the case until the time for admitting the steam to the cylinder; and hence, at the proper moment, C and C' are opened without difficulty, but as soon as it leaves its seat and the passage, *d* or *d'*, communicates with the cylinder, the lower opening of the passage is closed to the chest by *b* or *b'* coming on the valve seat. The toes may be adjusted to cut off at any desired point without a governor, and is equally adapted to vertical as horizontal cylinders. The patent is dated Nov. 30, 1858.

Fig. 2 illustrates another invention, which consists in so combining the double seated or equilibrium valve with an ordinary slide valve, so as to have it act as a drop valve cut-off, variable in its action, and deriving its motions from the movements of the slide valve. Fig. 3 shows its application to an horizontal engine, one valve only being shown. A A mark the usual induction or steam ports at the ends of the cylinder, and B B the exhaust ports. C C are the slide valves and D the stem, which may pass through the passage in the one valve (Fig.

COLMAN'S IMPROVEMENTS IN CUT-OFFS.

Fig. 1



3), or may be attached to the ends of the valves. E E are the passages for the steam through the slide valves, F F the balanced valves, G G their seats, and H H their stems. I, Fig. 3, are angular forked levers, embracing the drop-valve stems, with their other ends pointing towards toes, J, projecting from the top of the valve chest. These toes are jointed to the lower ends of rods, K, which pass through stuffing boxes in the steam chest, and

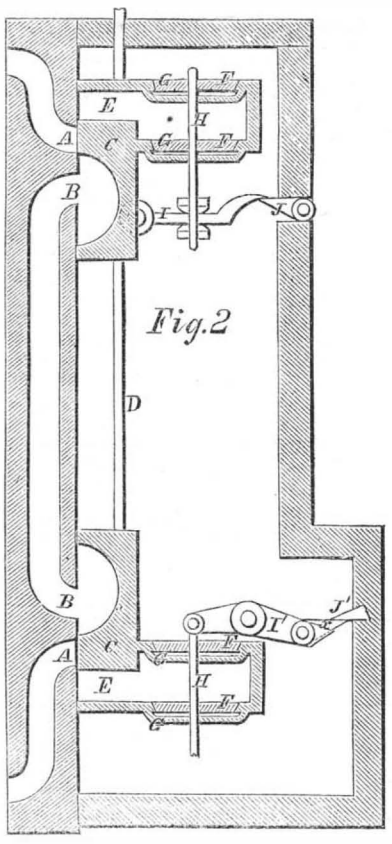
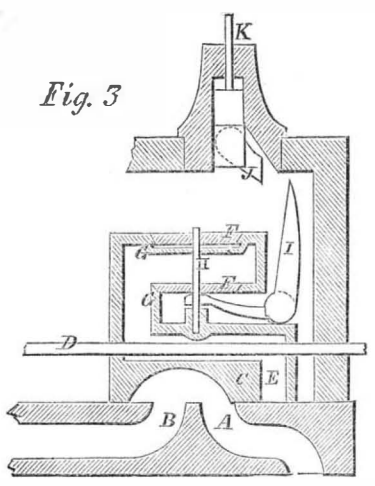


Fig. 2

they can be operated as in the previous invention. In Fig. 2 the levers, I I', for operating the drop valves, are of different form in order to give the proper motions to the valves, the upper lever, I, being nearly straight, and having a bent or curved end toward the upper toe, J, and the lower lever, I', having its fulcrum between the stem of the valve and the toe, J'; it will be seen that the lower toe, J', is rigid, the end of the lever, *x*, being hinged instead of being rigid, as in the other levers. This change in the levers and toes is such as will accommodate the invention to vertical engines, and admit of being adjusted by hand or a governor, as in Figs. 1 and 3.

It is evident that the invention is susceptible of being applied to the single or short slide valve, only one drop or balanced valve being used; but the two angular levers will be employed, one for lifting the valves at one end of the cylinder and another for the other end; Both these methods of arranging a cut-off are

Fig. 3



susceptible of great delicacy and accuracy, and are remarkable for their ingenuity and simplicity. The last patent is dated April 12, 1859, and the inventor (J. M. Colman, of Milwaukie, Wis.,) will be happy to furnish any further information upon being addressed as above.

Sanitary Precautions.

In the hight of summer all persons are especially called upon to look around their dwellings and consider whether there is not something unfriendly to health that might and ought to be removed without delay. Constant attention is requisite that nothing offensive be suffered to remain within doors. Liquor in which vegetables have been boiled, soap-suds, dirty water of every kind should be immediately thrown away; also cabbage-stalks, potato-peelings, and offal of every kind. The liquor in which greens have been boiled, if suffered to remain even a few minutes, or thrown down a scullery drain, emits a most unpleasant and unwholesome smell, which pervades the whole house. Many very cleanly people are not attentive to this particular Among other things that require attention fallen leaves should be frequently swept up and properly disposed of. In-doors every room should be swept and dusted daily, care being taken not merely to make a decent surface but thoroughly to cleanse under beds, drawers tables, and other furniture, and to clean out all closets and lumber holes.

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